

Title

**ClearPath HMP Enterprise Servers NX5820 and NX5820 K Hardware Configuration Guide
(7017 6300-005)**

This guide is intended to assist individuals responsible for defining and configuring a Unisys ClearPath HMP Enterprise Servers NX5820 and NX5820 K product with future expansion in mind. Guidelines and recommendations to assist the individuals responsible for defining and configuring a Unisys ClearPath HMP Enterprise Server NX5820 and NX5820 K server are also provided. The following product lines are available:

- ClearPath HMP Enterprise Server NX5821 models are single-domain systems containing a single VX1305-BSE/BSU, VX1505-BSE/BSU, ES5085, ES2024, or ES5044 based server.
- ClearPath HMP Enterprise Server NX5822 models are dual-domain systems containing a single VX1305-BSE/BSU, VX1505-BSE/BSU, ES5085R, ES2024, or ES5044 based server with an optional server of the same type.

Technical changes and additions were made to provide coverage for the ES2024R and ES5044R servers.

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Servers NX5820 and NX5820 K

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CLEARPATH HMP ENTERPRISE SERVERS

NX5820 and NX5820 K Hardware Configuration Guide

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NX5820 and NX5820 K Hardware Configuration Guide

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NX5820 and NX5820 K
**Hardware Configuration
Guide**

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Contents

About This Guide	xi
Section 1. Introduction	
How to Use This Guide	1-1
What Product Models Are Covered	1-2
System Architecture	1-2
Features	1-2
Technology Enhancements	1-2
System Partitioning	1-3
Single Domain	1-3
Dual Domain	1-3
Single Monolithic Partition	1-3
Two Separate Partitions	1-3
Hardware Overview	1-4
Type of Computing System	1-4
The System Cabinet	1-4
Central Equipment Complex (CEC) Section	1-4
Expansion Sections	1-5
SVGA Monitor and Keyboard with Mouse	1-5
The I/O Subsystem	1-5
Rack-Mounted Devices	1-5
Other I/O Devices	1-6
System Cabinet Organization	1-6
Supported Peripherals	1-6
System Components	1-6
Section 2. Configuring System Hardware	
How This Section Is Organized	2-1
NX5820 Products	2-1
Single-Domain, Single-Processor (SDSP) NX5821 Models 31 to 71	2-1
Dual-Domain, Multiple-Processor (DDMP) NX5822 Models 32 to 78	2-1
NX5820 Product Configurations	2-3
ClearPath Enterprise Server NX5821 Single-Domain, Single-Processor (SDSP) Configurations Models 31 through 71	2-3

ClearPath Enterprise Server NX5822 Dual-Domain, Multi-Processor (DDMP) Configurations Models 32 through 78	2-6
NX5820 Companion Package Style	2-11
NX5820 K Products	2-12
Single-Domain, Single-Processor (SDSP) NX5821 – BAS Models	2-12
Dual-Domain, Dual Processor (DDDP) NX5822 – BAS Models	2-12
Dual-Domain, Multiple-Processor (DDMP) NX5822 – BAS Models	2-13
NX5820 K Product Configurations	2-15
ClearPath Enterprise Server NX5821–BAS Single-Domain, Single-Processor (SDSP) Configurations	2-15
ClearPath Enterprise Server NX5822–BAS Dual-Domain Configurations	2-19
NX5820 K Processor Package Style	2-23
Cables	2-25
Power Layout and Requirements	2-25
Redundant Power/Cooling	2-25
NX5820 System Upgrades	2-26
NX5820 K System Upgrades	2-29

Section 3. Configuring System Options

How This Section Is Organized	3-1
NX5820 and NX5820 K Memory	3-1
MSA104 Style Memory	3-4
MSK208 Style Memory	3-5
MSK412 Style Memory	3-7
Memory Slot Locations	3-9
IOM Channel Expansion	3-10
Configuring Redundant SCP for the NX5820 and NX5820 K	3-10
Configuring Redundant Switching Hubs	3-11
Configuring Additional Displays	3-11
Configuring Operator Display Workstations	3-12
Configuration Guidelines for SCP Monitors and ODW Displays	3-12
Work Space	3-14
Redundant Power for the NX5820 and NX5820 K	3-14
Configuring Additional OSS7000 Devices	3-14
Converting From NX5820 to NX5820 K Systems	3-14

Section 4. Configuring I/O Cabinets and Channel Racks

How to Use This Section	4-1
Configuring I/O Cabinets	4-1
Configuring Channel Racks	4-3

Section 5. Configuring the Input/Output Module

Introduction	5-1
How This Section Is Organized	5-1
How the IOM Is Organized	5-2
IOM Logical Organization	5-2
IOM Physical Organization	5-3
IOM Options	5-5
CMF External Connectivity	5-5
CIOM Upgrade	5-6
Configuring Channels	5-7
Styles Offered	5-7
Assigning Channel Loads	5-8
Configuration Guidelines	5-9
Configuration Diagrams	5-12
PCITHRU Feature Card	5-15
Configuring QIC Tape and CD-ROM	5-17
Information Contained in the NX Systems I/O Configuration Guide	5-17

Section 6. Configuring the Servers

How This Section Is Organized	6-1
VX1305 Servers	6-2
VX1305 Basic Features	6-2
Server Components	6-5
Basic Server Components	6-5
Add-On Processor Board	6-6
Additional Memory Packages	6-7
Connection Packages and Optional PCI Thru Card	6-7
Optional User Access Components	6-8
Single-Server to Multi-Server Upgrades VX1305	6-8
Configuration Guidelines VX1305	6-9
VX1505 Servers	6-10
VX1505 Basic Features	6-10
Server Components	6-12
Basic Server Components and Optional Redundant Power Supply	6-14
Processors	6-15
Memory Packages	6-15
Connection Packages and Optional PCI Thru Card	6-16
Optional User Access Components	6-17
Single-Server to Multi-Server Upgrades VX1505	6-17
Configuration Guidelines VX1505	6-18
ES5085R Servers	6-19
Basic Features	6-19
Server Components	6-21
Processors	6-23
Memory Packages	6-23
Connection Packages and Optional PCI	6-24
Optional User Access Components	6-25

Contents

Configuration Guidelines ES5085R	6-25
ES2024R Servers	6-26
Basic Features	6-26
Server Components	6-28
Processors	6-30
Memory Packages	6-30
Connection Packages and Optional PCI	6-31
Optional User Access Components	6-32
Configuration Guidelines ES2024R	6-32
ES5044R Servers	6-33
Basic Features	6-33
Server Components	6-35
Processors	6-37
Memory Packages	6-37
Connection Packages and Optional PCI	6-38
Optional User Access Components	6-39
Configuration Guidelines ES5044R	6-39
Configuring the Private Maintenance Hub and Public Switching LAN	6-40
Configuring Optional and Recommended UPS	6-50
Section 7. Connecting Other Host Systems	
Glossary	1
Index	1

Figures

1-1.	Typical View of ClearPath Enterprise Server NX5820 and NX5820 K with VX1505 (7U) Servers	1-8
1-2.	System Cabinet PCA Locations for NX5820	1-9
1-3.	System Cabinet PCA Locations for NX5820 K	1-10
1-4.	Block Diagram of ClearPath Enterprise Server NX5820 and NX5820 K Single-Domain, Single-Console Configuration	1-10
1-5.	Block Diagram of ClearPath Enterprise Server NX5820 and NX5820 K in Dual-Domain, Single-Console Configuration	1-11
1-6.	Block Diagram of ClearPath Enterprise Server NX5820 and NX5820 K in Dual-Domain, Redundant-Console/Redundant Public Switch Configuration	1-12
2-1.	NX5820 Single-Domain System Cabinet Configuration with VX1305 Servers	2-5
2-2.	NX5820 Single-Domain Cabinet Configuration, with VX1505 Servers	2-6
2-3.	NX5820 Dual-Domain Redundant System Cabinet Configuration, with VX1305 Servers	2-10
2-4.	NX5820 Dual-Domain System Cabinet Configuration, with VX1505 Servers	2-10
2-5.	NX5820 K Single-Domain System Cabinet Configuration with VX1305 Servers	2-18
2-6.	NX5820 K Single-Domain Cabinet Configuration, with VX1505 Servers	2-19
2-7.	NX5820 K Dual-Domain Redundant System Cabinet Configuration, with VX1305 Servers	2-22
2-8.	NX5820 K Dual-Domain System Cabinet Configuration, with VX1505 Servers	2-22
2-9.	Power Layout	2-25
2-10.	NX5820 Upgrade Diagram	2-27
2-11.	NX5820 K Upgrade Diagram	2-30
3-1.	MSA Board Layout	3-4
3-2.	MSK208 Board Layout	3-6
3-3.	MSK412 Board Layout	3-8
3-4.	Typical Client Supplied Single ODW Arrangement	3-13
5-1.	NX5820 IOM Organization	5-2
5-2.	NX5820 K IOM Organization	5-3
5-3.	Card Module Assembly for NX5820	5-4
5-4.	Card Module Assembly for NX5820 K	5-5
5-5.	CIOM/CMF/CS-BUS and Channel Diagram	5-9
5-6.	Single Domain Typical Channel Configuration (Two Internal CS Busses, Two Servers, Four External 4-Channel Busses)	5-13
5-7.	Dual Domain Typical Channel Configuration (One Internal CS Buss, Two Servers, and One External 8-Channel Buss per Domain)	5-14

Figures

5-8.	Dual Domain Typical PCITHRU Card Location in the Internal and External Channel Racks	5-15
5-9.	PCITHRU Slot Versus PCI Bridge Jumper Positions	5-16
6-1.	Road Map for Ordering VX1305 Servers	6-4
6-2.	VX1305 Server CS Bus Cable Connection	6-9
6-3.	Road Map for Ordering VX1505 Servers	6-13
6-4.	VX1505 Server CS Bus Cable Connection	6-18
6-5.	Road Map for Ordering ES5085R Servers	6-22
6-6.	ES5085R Server CS Bus Cable Connection	6-25
6-7.	Road Map for Ordering ES2024R Servers	6-29
6-8.	ES2024R Server CS Bus Cable Connection	6-32
6-9.	Road Map for Ordering ES5044R Servers	6-36
6-10.	ES5044R Server CS Bus Cable Connection	6-39
6-11.	Single SCP/Server to UPS Status Cable Connections (Site UPS Installed) ...	6-53
6-12.	Dual SCP/Server to UPS Status Cable Connections (Site UPS Installed)	6-54
6-13.	SCP to UPS Status Cable	6-55
6-14.	Standalone (PRC1000i) UPS to SCP Cabling	6-55

Tables

1-1.	ClearPath Enterprise Server NX Product Models Covered in This Guide	1-2
1-2.	Acronyms for System Components	1-7
2-1.	ClearPath Enterprise Server NX5820 Product Models	2-2
2-2.	ClearPath Enterprise Server NX5821 Single-Domain, Single-Processor Configurations, Models 31 through 71	2-3
2-3.	ClearPath Enterprise Server NX5822 Dual-Domain, Multi-Processor Models 32 through 72	2-7
2-4.	ClearPath Enterprise Server NX5822 Dual-Domain, Multi-Processors Models 73 through 78	2-8
2-5.	NX5820 Companion Styles	2-11
2-6.	ClearPath Enterprise Server NX5820 K Product Models	2-14
2-7.	ClearPath Enterprise Server NX5821-BAS Single-Domain, Single- Processor Configurations	2-16
2-8.	ClearPath Enterprise Server NX5822-BAS Dual-Domain Configurations	2-20
2-9.	NX5820 K Processor Package Styles	2-23
2-10.	NX5820 System Upgrade Options Summary	2-26
2-11.	NX5820 Single Domain, Single Processor Model Upgrades (SDSP to SDSP)	2-28
2-12.	NX5820 Single Domain Single Processor to Dual Domain Dual Processor Upgrades (SDSP to DDDP)	2-28
2-13.	NX5820 Dual Domain Multi Processor Upgrades (DDMP to DDMP)	2-29
2-14.	NX5820 K Upgrade Options Summary	2-31
2-15.	Performance Upgrades for Single-Domain, Single-Processor Systems	2-31
2-16.	NX5820 K Single-Domain, Single-Processor to Dual Domain, Dual- Processor Upgrade (SDSP to DDDP)	2-32
2-17.	NX5820 K Performance Upgrades for Dual Domain, Dual-Processor Systems	2-33
2-18.	NX5820 K Dual Domain, Dual-Processor To Dual Domain, Multi-Processor Upgrade (DDDP to DDMP)	2-33
2-19.	NX5820 K Dual Domain, Dual-Processor Multi-Processor Upgrades (DDMP)	2-34
3-1.	Basic Memory Board Configuration By System Style	3-2
3-2.	NX5820 and NX5820 K Memory Styles and Upgrade Components	3-2
3-3.	Memory Card Slot Locations	3-9
3-4.	Redundant System Console Package Styles	3-10
3-5.	Guidelines for Configuring SCP Monitors and ODW Displays	3-13
3-6.	Conversion Package Styles for NX5820 to NX5820 K Systems	3-15
4-1.	Cabinet Styles	4-2
4-2.	Configuration Guidelines for I/O Cabinets	4-2
4-3.	Channel Rack Components	4-4
4-4.	Guidelines for Configuring Channel Racks	4-5

Tables

4-5.	Configuring Power Net in Channel Racks	4-6
5-1.	CMF External Connectivity Options	5-6
5-2.	Supported Channel Adapter Types	5-7
5-3.	CIOM CS-Bus Channel Loading	5-8
5-4.	Guidelines for Configuring Channels	5-10
5-5.	NX5820 Channel Assignments and Configurations	5-12
6-1.	Basic Features, VX1305 Servers	6-3
6-2.	VX1305-BSE/-BSU Basic Components	6-6
6-3.	Add-On Processor Board, VX1305 Servers	6-6
6-4.	Memory Packages, VX1305 Servers	6-7
6-5.	Connection Package Components, VX1305 Servers	6-7
6-6.	VX4000-CP3 Optional User Access Components, VX1305 Servers	6-8
6-7.	Configuration Guidelines, VX1305 Servers	6-9
6-8.	Basic Features, VX1505 Servers	6-11
6-9.	VX1505-BSE Processor Requirements	6-12
6-10.	VX1505-BSE/-BSU Basic Components	6-14
6-11.	Processors, VX1505 Servers	6-15
6-12.	Memory Packages, VX1505 Servers	6-15
6-13.	Connection Package Components, VX1505 Servers	6-16
6-14.	VX4000-CP3 Optional User Access Components, VX1505 Servers	6-17
6-15.	Configuration Guidelines, VX1505 Servers	6-18
6-16.	Basic Features, ES5085R Servers	6-20
6-17.	Processors, ES5085R Servers	6-23
6-18.	Memory Packages, ES5085R Servers	6-23
6-19.	Connection Package Components, ES5085R Servers	6-24
6-20.	VX4000-CP3 Optional User Access Components, ES5085R Servers	6-25
6-21.	Basic Features, ES2024R Servers	6-27
6-22.	Processors, ES2024R Servers	6-30
6-23.	Memory Packages, ES2024R Servers	6-30
6-24.	Connection Package Components, ES2024R Servers	6-31
6-25.	VX4000-CP3 Optional User Access Components, ES2024R Servers	6-32
6-26.	Basic Features, ES5044R Servers	6-34
6-27.	Processors, ES5044R Servers	6-37
6-28.	Memory Packages, ES5044R Servers	6-37
6-29.	Connection Package Components, ES5044R Servers	6-38
6-30.	VX4000-CP3 Optional User Access Components, ES5044R Servers	6-39
6-31.	Configuring Single Domain Maintenance Hub and One Switching LAN	6-40
6-32.	Configuring Single Domain Maintenance Hub and Two Switching LANs	6-42
6-33.	Configuring Dual Domain Maintenance Hub and One Public Switching LAN ..	6-45
6-34.	Configuring Dual Domain Maintenance Hub and Two Public Switching LANs	6-47
6-35.	UPS Options	6-50
6-36.	Status Selection Between SCP's and Servers	6-52
7-1.	Guidelines for Connecting Other Host Systems	7-1

About This Guide

Purpose

This guide provides:

- Guidelines and recommendations to assist the individuals responsible for defining and configuring a Unisys ClearPath Enterprise Server NX5820 and NX5820 K server
- Guidelines to ensure ease of future expansion and maximum throughput

Scope

This guide provides:

- A brief description of the system with major emphasis on presenting the guidelines for configuring system components
- System limitations and restrictions with the focus on maximizing throughput

Audience

The audience for this guide includes:

- Clients with skills equivalent to a second-level Unisys client service engineer (CSE) experienced in configuring large-scale computer systems
- Unisys client representatives

Prerequisites

This guide assumes a working knowledge of large-scale computer systems, including:

- How to configure standard system components
- How to configure system options
- How to configure domains

How to Use This Guide

- Read the entire guide to familiarize yourself with the basic concepts it presents
- Use it as a reference for configuring system components and system options
- Use it to facilitate the ordering of system components

Organization

This guide consists of the following sections. In addition, an index appears at the end of this guide.

Section 1. Introduction

Provides a system overview that describes the system components.

Section 2. Configuring System Hardware

- Lists models included in the product line
- Lists hardware component styles, by model
- Provides an overview of each model
- Provides card profiles for the system and console cabinets
- Provides block diagrams of the central equipment complex and the overall system

Section 3. Configuring System Options

Describes how to configure the following options:

- Memory expansion
- Channel expansion
- Redundant system control processor (SCP)
- Additional displays
- Operator work space
- Redundant power supply
- Additional OSS7000 devices

Section 4. Configuring I/O Cabinets and Channel Racks

- Provides a brief description of I/O cabinet configurations, referring the reader to appropriate publications for detailed information
- Describes how to configure channel racks

Section 5. Configuring the Input/Output Module

- Describes how the I/O module (CIOM) is organized
- Describes IOM options
- Describes how to configure channels
 - Identifies channel adapter styles supported, both new and migration
 - Describes how to assign channel loads
 - Provides guidelines for configuring channels
 - Provides configuration diagrams for typical channel configurations
- Describes how to configure peripheral devices included with the system
- Identifies information included in the I/O Configuration Guide

Section 6. Configuring the Servers

Provides a description of server features and guidelines for configuring a VX1305-BSE/BSU, VX1505-BSE/BSU or ES5085R based server.

Section 7. Connecting Other Host Systems

Provides guidelines for connecting other host systems through the I/O subsystem.

Related Product Information

Unisys Publications:

ClearPath Enterprise Server NX5820 and NX5820 K Hardware Overview (7017 6284)

Describes the hardware configuration and features of the NX5820 and NX5820 K system, including a brief overview of each of the major components.

ClearPath Enterprise Server NX5600, NX5800, NX5820, and NX5820 K Site Planning Guide (7016 7010)

Describes how to prepare the site for system installation.

ClearPath Enterprise Server NX5600, NX5800, NX5820, and NX5820 K Site Planning Materials (7016 7036)

Provides the forms required to prepare for system installation.

About This Guide

ClearPath Enterprise Server NX5600, NX5800, NX5820, and NX5820 K Site Planning Checklist (7016 7028)

Provides checklists and procedures required to prepare the site for system installation.

ClearPath Enterprise Server NX Series with Windows NT Implementation and Operations Guide (8807 6542)

Provides instructions to install software products and software configurations for the Operator Display Workstations (ODW) in a Windows NT environment.

Unisys e-@ction ClearPath Enterprise Servers A Series and NX Systems I/O Configuration Guide (7008 6087)

Provides I/O configuration and guidelines for the Unisys e-@ction ClearPath Enterprise Server NX systems.

ATM Channel Adapter Style CA6551-OC3 Configuration Guide (7013 0927)

Provides I/O configuration guidelines for ATM channel adapters used on ClearPath Enterprise Server systems.

Industry Publications:

OutLook Concentrator User Guide (Part Number 053-0016-00), Apex PC Solutions, Inc., Woodinville, WA

Describes the NT/SCP switch used with the servers. Includes an overview of the switch, features description, unpacking and installation information, functional overview, and configuration information.

Section 1

Introduction

How to Use This Guide

This guide provides the guidelines, procedures, and examples necessary to configure a ClearPath Enterprise Server NX5820 and NX5820 K products.

For ClearPath Enterprise Server NX5820 and NX5820 K Enterprise Server (ES) product line:

- NX5821 models are single-domain systems with a single processor
- NX5822 models are dual-domain systems containing either a single processor or multi-processors per domain

All models include a single server, with a maximum of five servers per domain.

To configure your system:

- Use this guide to configure the central system, up to and including the channel interface
- Use the *ClearPath Enterprise Server NX I/O Hardware Configuration Guide* (7008 6087) to configure the I/O subsystems from the channel interface outward
- Read this introduction and the next section to gain familiarity with the system architecture and system components
- Use the remainder of the guide to configure a specific system

Adhering to the guidelines presented in this guide will enable you to correctly configure the system and place a client order. For placing client orders, also refer to the Unisys Configuration software system (UCON) used by sales support and salesperson to prepare and configure Unisys computer products.

Note: *The inclusion of items in this document does not guarantee their availability. Refer to the Unisys Worldwide Price Book for an approved listing of products available for purchase.*

What Product Models Are Covered

Table 1–1 lists the ClearPath *Enterprise Server* NX product models covered in this guide.

Table 1–1. ClearPath *Enterprise Server* NX Product Models Covered in This Guide

Model	Description
NX5820 PRODUCTS	
NX5821 models 31 through 71	Single-Domain, Single-Processor (SDSP)
NX5822 models 32 through 78	Dual-Domain, Multiple-Processor (DDMP)
NX5820 K PRODUCTS	
NX5821–BAS	Single-Domain, Single-Processor (SDSP) with performance level 31 to 71
NX5822–BAS	Dual-Domain, and Multi-Processor (DDDP and DDMP) with performance level 32 to 7A

System Architecture

Features

- Multiple processors and redundant operation as client options
- Processor module (PM) architecture that excels in array processing
- Functional modules that use technologies based on state-of-the-art, high-density Complimentary Metal Oxide Semiconductor (CMOS) and Application Specific Integrated Circuits (ASIC) technology
- High-density multi-chip packaging that significantly reduces the physical size while substantially improving performance and reliability
- A unique packaging scheme that:
 - Provides for two distinct power and maintenance domains
 - Provides shared dual domain cooling
 - Enables the creation of two secure and independent partitions in one cabinet

Technology Enhancements

- Printed Circuit Assemblies (PCAs) are generally smaller with higher densities and finer traces
- Memory subsystem enhancements that provide:
 - Up to 9,216 MB storage using six memory boards (three per domain)

System Partitioning

Single Domain

- Cannot be partitioned.
- A single-domain system contains:
 - Its own power, cooling, and maintenance interface
 - Its own master clock

Dual Domain

Single Monolithic Partition

- The combined domains function as a monolithic system.
- Each domain contains a separate power subsystem and maintenance interface.
- Cooling is shared between domains.
- Although each domain contains a master clock, only one master clock is used by the partition.

Two Separate Partitions

- Each partition functions as an independent system.
- The partitions cannot share resources.
- Each partition must include at least one PM, one IOM, and one MSU.
- Each domain contains a separate power subsystem and shared cooling, regardless of the division of resources among partitions.
- Each partition uses a separate master clock and has a separate maintenance interface, regardless of the division of resources among domains.

Hardware Overview

Type of Computing System

The ClearPath NX5820 and NX5820 K Server is a general-purpose, medium-to-high-performance system running under Level Delta compatible MCP.

The System Cabinet

The system cabinet includes:

- A central equipment complex (CEC) section
- An expansion section for additional servers, consoles, and peripherals

The SVGA monitor with keyboard and mouse are placed on a table or other surface near the system cabinet. Figure 1–1 provides a conceptual view of the ClearPath *Enterprise Server* NX5820 and NX5820 K with VX1505-based servers.

Central Equipment Complex (CEC) Section

The Central Equipment Complex section:

- Houses the modules comprising the central processor system—one or two domains
- Includes the following resources:
 - From one to ten processor modules (PMs) depending on model
 - From one to six memory storage units (MSUs) depending on model and options
 - One or two Input/Output Modules, one per domain, depending on model and options.
 - Common logic, including maintenance subsystem, and master clock
 - Separate power subsystem in each domain
 - Shared cooling for both domains
- No servers are located in the CEC section.
- Up to two Automatic Power Control (APC)s depending on configuration.
- Up to two Maintenance LAN Hubs, unlimited switching (Public) Hubs, and two Apex Selector ST switches depending on configuration.

Figure 1–2 shows PCAs located for the CEC for the ClearPath *Enterprise Server* NX5820.

Figure 1–3 shows PCAs located for the CEC for the ClearPath *Enterprise Server* NX5820 K.

Figure 1–4 through Figure 1–6 show block diagrams of the ClearPath *Enterprise Server* NX5820 and NX5820 K in various configurations of domains, switching hubs, servers, and consoles.

Refer to Section 2 for information on specific models.

Expansion Sections

The expansion sections house the following units:

- Server A
- Optional servers (up to five maximum per domain)
- Up to two Maintenance LAN Hubs, unlimited switching (Public) Hubs, and up to two Apex Selector ST Switches
- An OSS7000 rack containing system peripheral units, including:
 - o CD-ROM drive
 - o QIC tape drive
 - o Two disk drives
- Optional Uninterruptible Power Supply (UPS)
- COMMPOD

SVGA Monitor and Keyboard with Mouse

- Provides the operator interface with the system
- Includes cables for positioning the keyboard, monitor, and mouse on a table or similar surface near the system cabinet. A table is available as an option.
- A remote support modem—for domestic systems only—is located with the monitor and keyboard.

The I/O Subsystem

The I/O subsystem includes:

- Rack-mounted devices
- Other I/O devices

Rack-Mounted Devices

- Housed in 36U-high rack-style utility cabinets (U = 1.75 inches)
- Accommodates rack devices with both Unity Storage Device (USD) and Open Storage Device (OSD) style prefixes
- Rack-mounted devices connect to channel adapters via CS-bus interfaces (see Sections 4 and 5)

For a comprehensive list of racks and devices qualified for use on the system, refer to Appendix A in the *ClearPath Enterprise Server NX I/O Hardware Configuration Guide* (7008 6087).

System Cabinet Organization

Other I/O Devices

The I/O subsystem accommodates any other device that connects via a CS-bus interface and is qualified for use on the system, such as:

- Standalone disks and tapes
- Devices housed in migratory I/O cabinets
- Devices attached via Direct Access Channels (DACs) to Fiber Distributed Data Interface (FDDI) Local Area Network (LAN)s, 802.3 LANs, and Asynchronous Transfer Mode (ATM) networks
- Other host systems

System Cabinet Organization

Section 2 provides card profiles of the system cabinet for typical product models.

Supported Peripherals

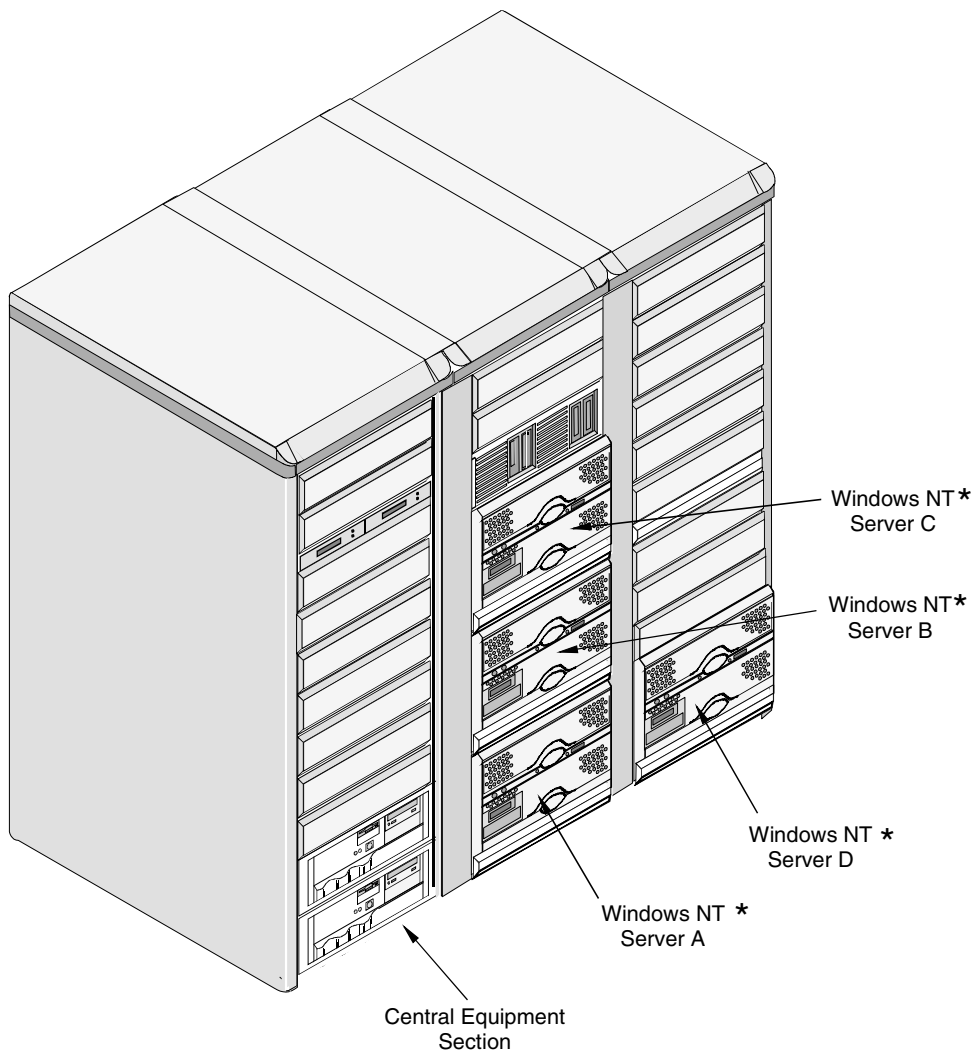
See "Configuring Channels" in Section 5 for a list of channel adapter styles supported on the ClearPath *Enterprise Server* NX Product. Refer to the *ClearPath Enterprise Server NX I/O Hardware Configuration Guide* (7008 6087) for a list of peripheral devices and details regarding the I/O subsystem configuration.

System Components

Table 1–2 lists acronyms for system components. Refer to the Glossary for additional functional definitions.

Table 1–2. Acronyms for System Components

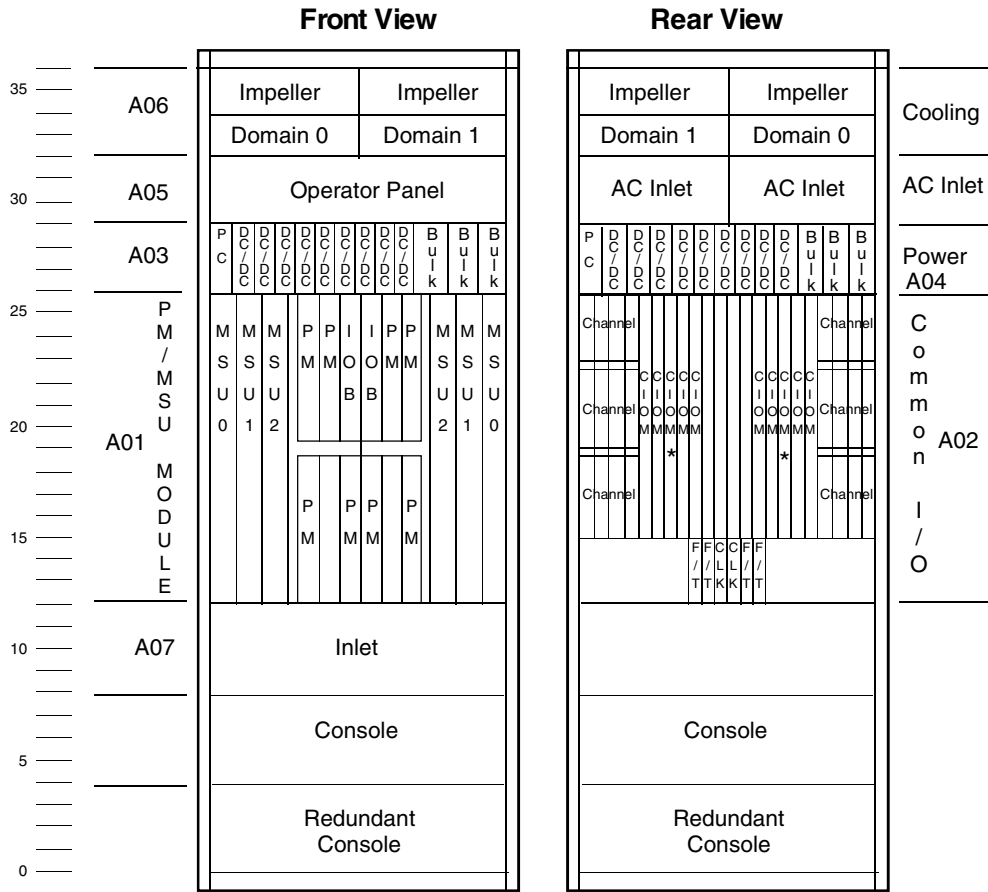
Acronym	Component Name
NX582x-rp	Enterprise Server models: (x = 1, single-domain; x = 2, dual-domain; r = performance level; p = number of PMs per system)
APC	Automatic Power Control
ASIC	Application specific integrated circuit
ATM	Asynchronous transfer mode
CIOM	Common Input/Output module
CMF	Channel manager facility
CMOS	Complimentary metal oxide semiconductor
CSBus	Channel service bus
CSE	Common scan engine
DAC	Direct access channel
DDA	Dual domain adapter
DDMP	Dual-domain, multiple-processor
DIMM	dual Inline memory module
DTU	Data transfer unit
ES	Enterprise server
F/T	Feedthru
FDDI	Fiber distributed data interface
GB	Gigabyte
Enterprise Server	Heterogeneous multi processing
IOB	Input/Output bridge
IOM	Input/Output module
IOU	Input/Output unit
IPI	Intelligent peripheral interface
JTAG	Joint task access group
LAN	Local area network
MAINTLAN	Maintenance local area network
MB	Megabyte
Mb	Megabit
MLI	Message level interface
MSU	Memory storage unit
MSUA	Memory storage unit (4 requestor)
MSUK	Memory storage unit (8 or 12 requestor)
OSCAR	Oscillator card (clock)
PCI	Peripheral connect interface
PM	Processor module
QIC	Quarter-inch cartridge tape
SCP	System control processor
SCSI	Small computer system interface
SDSP	Single-domain, single-processor
UPS	Uninterruptible power supply
USD	Unity storage device



* The servers shown are typical of the servers that can be configured.

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Figure 1-1. Typical View of ClearPath *Enterprise Server* NX5820 and NX5820 K with VX1505 (7U) Servers

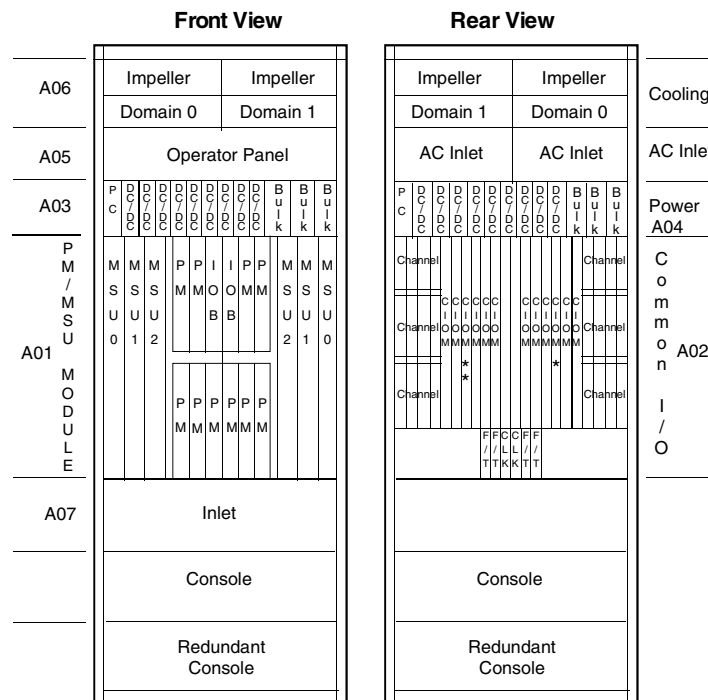


* CIOM per domain is dedicated to IOU functionality. Can not be used for CS-Bus connectivity

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Figure 1-2. System Cabinet PCA Locations for NX5820

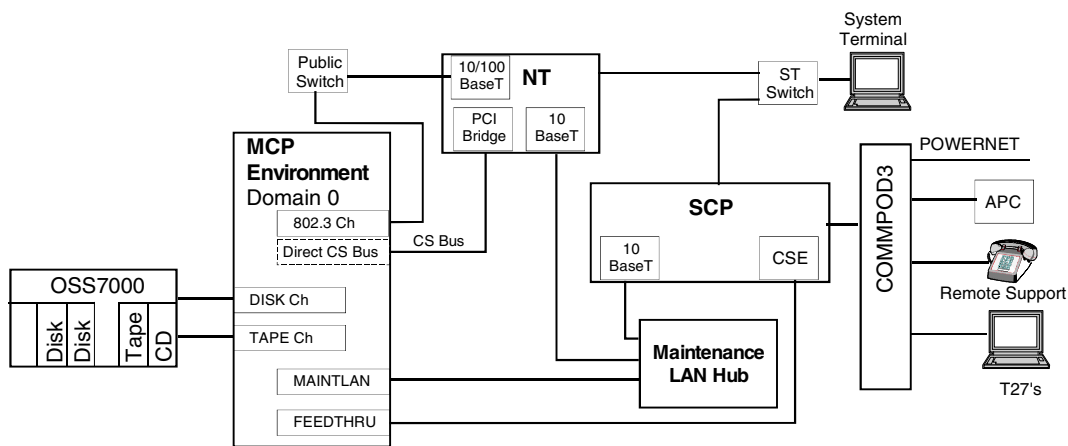
System Components



- * Optional CIOM in domain 0 dedicated for Multi-IOU functionality. Can not be used for CS-Bus connectivity
- * Optional CIOM in domain 1 dedicated for TCU functionality. Can not be used for CS-Bus connectivity

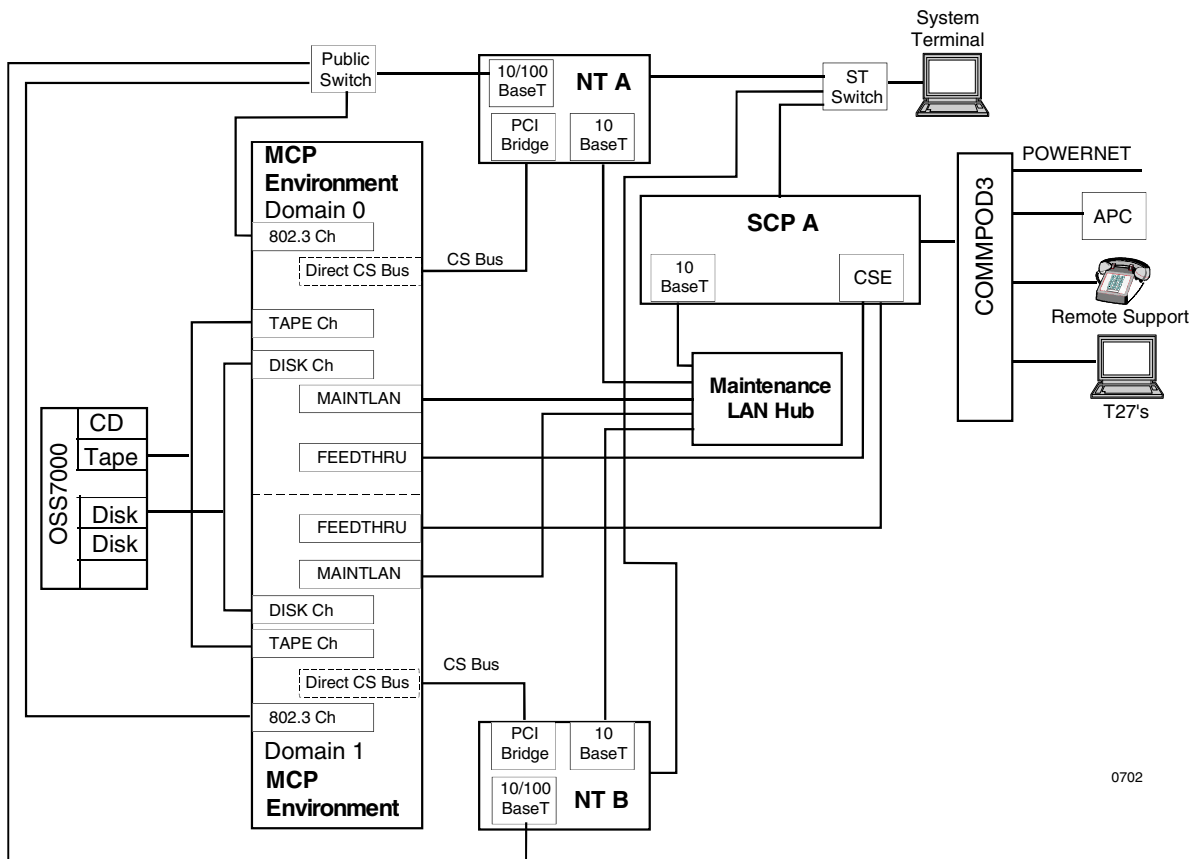
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Figure 1-3. System Cabinet PCA Locations for NX5820 K



0701

Figure 1-4. Block Diagram of ClearPath Enterprise Server NX5820 and NX5820 K Single-Domain, Single-Console Configuration



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Figure 1-5. Block Diagram of ClearPath *Enterprise Server* NX5820 and NX5820 K in Dual-Domain, Single-Console Configuration

System Components

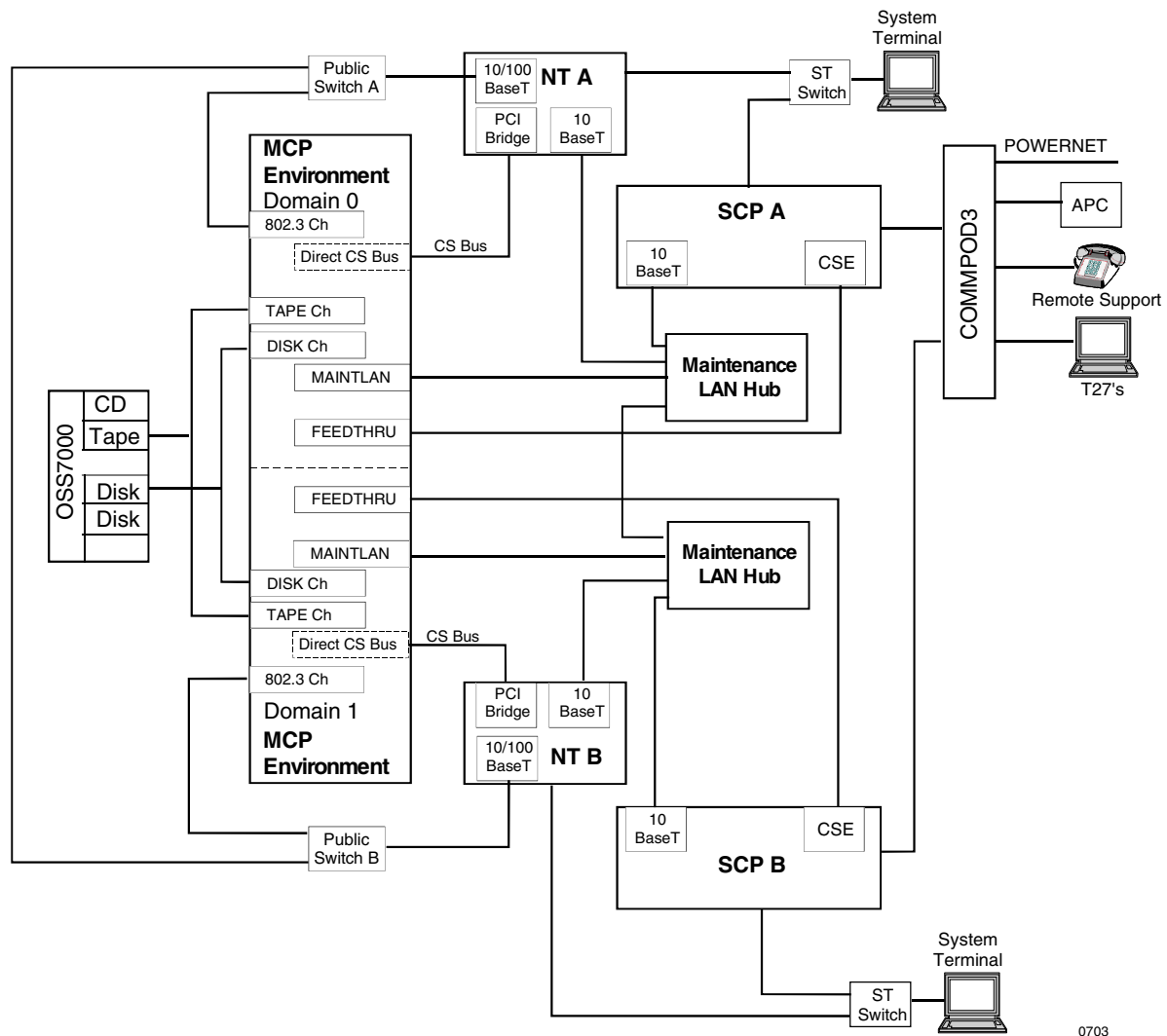


Figure 1-6. Block Diagram of ClearPath *Enterprise Server* NX5820 and NX5820 K in Dual-Domain, Redundant-Console/Redundant Public Switch Configuration

Section 2

Configuring System Hardware

How This Section Is Organized

This section contains the following information for the ClearPath HMP Enterprise Servers NX5820 and NX5820 K products:

- Provides a summary list of hardware components, by model
- Provides an overview of each model, including the system cabinet card profile and a list of components included with the model

NX5820 Products

Table 2–1 lists the basic hardware components associated with each NX5820 product model. The minimum and maximum system configurations are as follows:

Single-Domain, Single-Processor (SDSP) NX5821 Models 31 to 71

- Minimum system performance – NX5821-31
Maximum system performance – NX5821-71
- One processor module (PM)
- One I/O module (CIOM) with up to four channel service bus (CS-bus) interfaces per CIOM board.
- One CIOM board is dedicated for IOU functionality.
- One memory storage unit with 192 MB storage minimum per domain (Optional 1152 MB per domain maximum). Memory has 4 requesters.
- Single server containing its own processing modules, memory, and peripheral subsystem, with a dual-server per domain option

Dual-Domain, Multiple-Processor (DDMP) NX5822 Models 32 to 78

- Minimum system performance – NX5822-32
Maximum system performance – NX5822-78
- Two to eight processor modules (PM) depending on model
- Two to eight I/O modules (CIOM), one to four per domain for CS-bus connectivity with up to four channel service bus (CS-bus) interfaces per CIOM
- Two CIOMs (one per domain) dedicated for IOU functionality only

NX5820 Products

- One to two memory storage units with 192 MB or 384 MB storage per domain depending on model
- Single server containing its own processing modules, memory, and peripheral subsystem, with a dual-server per domain option

Notes:

1. The CEC contains two distinct and independent power and maintenance domains to support the functional hardware in the respective domain.
2. Cooling is shared between domains.
3. Redundant power is optional.

Table 2–1. ClearPath Enterprise Server NX5820 Product Models

Model (Package Style)	Processor Modules	Memory Storage Units ¹ Std/Max	CIOM ² Modules Std/Max	Servers ³ Std/Max	System (SCP) Console Std/Max	SCSI-2W ⁴ Channels	802.3 Channels	Maint LAN	Maint Hub Std/Max	Switching Hub ⁵ Std/Max
NX5820 Single-Domain, Single-Processor (SDSP) Models										
NX5821-31	1	1/3	2/5	1/5	1	2	1	1	1/1	1/Unlimited
NX5821-41	1	1/3	2/5	1/5	1	2	1	1	1/1	1/Unlimited
NX5821-51	1	1/3	2/5	1/5	1	2	1	1	1/1	1/Unlimited
NX5821-61	1	1/3	2/5	1/5	1	2	1	1	1/1	1/Unlimited
NX5821-71	1	1/3	2/5	1/5	1	2	1	1	1/1	1/Unlimited
NX5820 Dual-Domain, Multi-Processor (DDMP) Models										
NX5822-32	2	2/6	4/10	1/10	1/2	4	2	2	1/2	1/Unlimited
NX5822-42	2	2/6	4/10	1/10	1/2	4	2	2	1/2	1/Unlimited
NX5822-52	2	2/6	4/10	1/10	1/2	4	2	2	1/2	1/Unlimited
NX5822-62	2	2/6	4/10	1/10	1/2	4	2	2	1/2	1/Unlimited
NX5822-72	2	2/6	4/10	1/10	1/2	4	2	2	1/2	1/Unlimited
NX5822-73	3	2/6	4/10	1/10	1/2	4	2	2	1/2	1/Unlimited
NX5822-74	4	2/6	4/10	1/10	1/2	4	2	2	1/2	1/Unlimited
NX5822-75	5	2/6	4/10	1/10	1/2	4	2	2	1/2	1/Unlimited
NX5822-76	6	4/6	4/10	1/10	1/2	4	2	2	1/2	1/Unlimited
NX5822-77	7	4/6	4/10	1/10	1/2	4	2	2	1/2	1/Unlimited
NX5822-78	8	4/6	4/10	1/10	1/2	4	2	2	1/2	1/Unlimited

Notes:

1. The NX5820 utilizes two styles of (MSA and MSK) memory boards. The MSA104 boards are to be configured in all systems up to and including model NX5822-72, the MSK208 boards are to be configured in system models NX5822-73 to-76, and the MSK412 boards are to be configured in models NX5822-77 and 78.
2. Up to five CIOMs can be configured per domain with one dedicated (per domain) to provide IOU functionality and up to four to provide CS-Bus connectivity.
3. Each model includes a basic server; up to five servers per domain are configurable.
4. Dedicated SCSI-2W channels (2 per domain) for connection of OSS7000 device (QIC tape, CD-ROM, and hard disk).
5. Space provided for two within CEC cabinet, additional hubs can be configured as required.

NX5820 Product Configurations

This subsection describes the NX5820 product configurations.

ClearPath Enterprise Server NX5821 Single-Domain, Single-Processor (SDSP) Configurations Models 31 through 71

- Table 2–2 lists component styles for these models.
- Figure 2–1 and Figure 2–2 show the hardware configurations for system cabinets containing VX1305- and VX1505-based servers, respectively.
- Companion styles are listed later in this section.
- Power/cooling options are listed later in this section.
- System upgrades are listed later in this section.
- Section 3 provides guidelines for adding system options.

Table 2–2. ClearPath Enterprise Server NX5821 Single-Domain, Single-Processor Configurations, Models 31 through 71

Component Style	Description	NX5821 Models				
		31	41	51	61	71
NX580131-MOD	MODULE ASSY, SINGLE DOMAIN 31 (Includes Cooling, Power, ac Entry, Card Rack Modules)	1				
NX58312-PRM	STYLE PROM, NX5820 31/32	1				
NX582131-UDE	FUNCTIONAL S/W, IP EMULATION NX5821-31	1				
NX580141-MOD	MODULE ASSY, SINGLE DOMAIN 41 (Includes Cooling, Power, ac Entry, Card Rack Modules)		1			
NX58412-PRM	STYLE PROM, NX5820 41/42		1			
NX582141-UDE	FUNCTIONAL S/W, IP EMULATION NX5821-41		1			
NX580151-MOD	MODULE ASSY, SINGLE DOMAIN 51 (Includes Cooling, Power, ac Entry, Card Rack Modules)			1		
NX58512-PRM	STYLE PROM, NX5820 51/52			1		
NX582151-UDE	FUNCTIONAL S/W, IP EMULATION NX5821-51			1		
NX580161-MOD	MODULE ASSY, SINGLE DOMAIN 61 (Includes Cooling, Power, ac Entry, Card Rack Modules)				1	
NX58612-PRM	STYLE PROM, NX5820 61/62				1	
NX582161-UDE	FUNCTIONAL S/W, IP EMULATION NX5821-61				1	
NX580171-MOD	MODULE ASSY, SINGLE DOMAIN 71 (Includes Cooling, Power, ac Entry, Card Rack Modules)					1
NX58712-PRM	STYLE PROM, NX5820 71/72					1
NX582171-UDE	FUNCTIONAL S/W, IP EMULATION NX5821-71					1
Common Components						
NX5821-CCC	Domain 0 CARD COMPLEMENT, CIOM (1 PM, 2 CIOM, 1 KIOB)	1	1	1	1	1

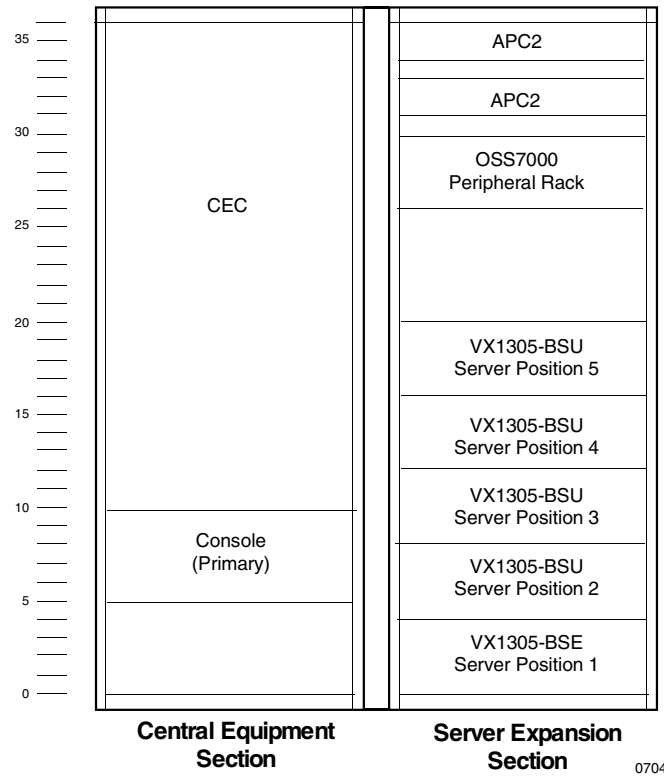
NX5820 Product Configurations

Table 2–2. ClearPath Enterprise Server NX5821 Single-Domain, Single-Processor Configurations, Models 31 through 71

Component Style	Description	NX5821 Models				
		31	41	51	61	71
MSA104-192	MSUA BD, 1 CHIPSET, 4 REQUESTER, 192 MB	1	1	1	1	1
NX5820-PSB	BASIC POWER SUPPLY COMPLEMENT	1	1	1	1	1
BRM36-0	BASIC 36U CABINET ASSEMBLY, STAND ALONE	1	1	1	1	1
RM2-TRM	APPEARANCE TRIM	1	1	1	1	1
NX5800-FAS	FRONT FASCIA COVERS	1	1	1	1	1
NX5000-IDP	ID PANEL	1	1	1	1	1
NX5820-SCP ¹	SYSTEM CONSOLE	1	1	1	1	1
NX5821-1X ^{1,2}	COMPANION STYLES (INCLUDES CHANNELS)	1	1	1	1	1
NX5820-CM	CABLE MANAGER	1	1	1	1	1
NX5820-CMA	CABLE MANAGER	1	1	1	1	1
One of: ³ VX1305-BSE or VX1505-BSE or ES5085R or ES2024R or ES5044R	Single server: Server (4U, 1-2 Processor Server) Server (7U, 1-4 Processor Server) Server (7U, 1-8 Processor Server) Server (7U, 1-2 Processor Server) Server (5U, 1-4 Processor Server)	1	1	1	1	1
A1003-MOD ^{1,4}	REMOTE SUPPORT MODEM	1	1	1	1	1

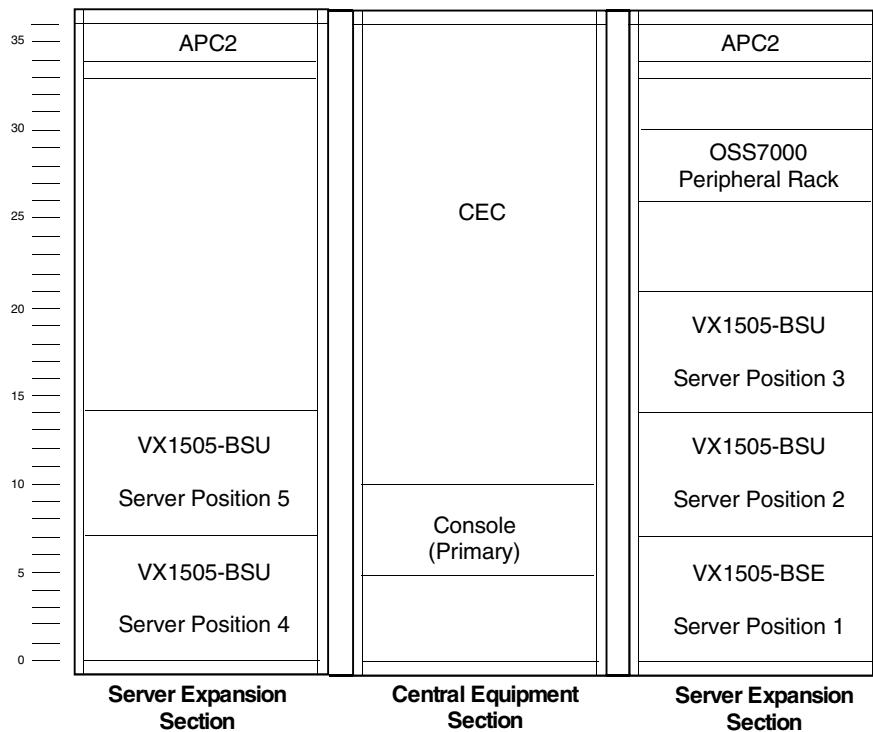
Notes:

1. Must be ordered separately.
2. See "companion package styles" for a list of components provided with this package style.
3. See Section 6 for configuration information on servers.
4. Required for domestic orders only.



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Figure 2-1. NX5820 Single-Domain System Cabinet Configuration with VX1305 Servers



0705

Figure 2–2. NX5820 Single-Domain Cabinet Configuration, with VX1505 Servers

ClearPath Enterprise Server NX5822 Dual-Domain, Multi-Processor (DDMP) Configurations Models 32 through 78

Table 2–3 lists component styles for models 32 through 72.

Table 2–4 lists component styles for models 73 through 78.

Figure 2–3 and Figure 2–4 show the hardware configurations for system cabinets containing VX1305 and VX1505 based servers, respectively.

Companion styles are listed later in this section.

Power/cooling options are listed later in this section.

System upgrades are listed later in this section.

Section 3 provides guidelines for adding system options.

Table 2-3. ClearPath Enterprise Server NX5822 Dual-Domain, Multi-Processor Models 32 through 72

Component Style	Description	NX5822 Models				
		32	42	52	62	72
NX580131-MOD	MODULE ASSY, SINGLE DOMAIN 31 (Includes Cooling, Power, ac Entry, Card Rack Modules)	1				
NX580232-CMP	DOMAIN '1' COMPONENTS 32	1				
NX58312-PRM	STYLE PROM, NX5820 31/32	2				
NX582232-UDE	FUNCTIONAL S/W, IP EMULATION NX5822-32	1				
NX580141-MOD	MODULE ASSY, SINGLE DOMAIN 41 (Includes Cooling, Power, ac Entry, Card Rack Modules)		1			
NX580242-CMP	DOMAIN '1' COMPONENTS 42		1			
NX58412-PRM	STYLE PROM, NX5820 41/42		2			
NX582242-UDE	FUNCTIONAL S/W, IP EMULATION NX5822-42		1			
NX580151-MOD	MODULE ASSY, SINGLE DOMAIN 51 (Includes Cooling, Power, ac Entry, Card Rack Modules)			1		
NX580252-CMP	DOMAIN '1' COMPONENTS 52			1		
NX58512-PRM	STYLE PROM, NX5820 51/52			2		
NX582252-UDE	FUNCTIONAL S/W, IP EMULATION NX5822-52			1		
NX580161-MOD	MODULE ASSY, SINGLE DOMAIN 61 (Includes Cooling, Power, ac Entry, Card Rack Modules)				1	
NX580262-CMP	DOMAIN '1' COMPONENTS 62				1	
NX58612-PRM	STYLE PROM, NX5820 61/62				2	
NX582262-UDE	FUNCTIONAL S/W, IP EMULATION NX5822-62				1	
NX580171-MOD	MODULE ASSY, SINGLE DOMAIN 71 (Includes Cooling, Power, ac Entry, Card Rack Modules)					1
NX580272-CMP	DOMAIN '1' COMPONENTS 72					1
NX58712-PRM	STYLE PROM, NX5820 71/72					2
NX582272-UDE	FUNCTIONAL S/W, IP EMULATION NX5822-72					1
Common Components						
NX5821-CCC	DOMAIN 0 CARD COMPLEMENT, CIOM (1 PM, 2 CIOM, 1 IOB)	1	1	1	1	1
NX5822-CCC	DOMAIN 1 CARD COMPLEMENT, CIOM (1 PM, 2 CIOM, 1 IOB)	1	1	1	1	1
MSA104-192	MSUA BD, 1 CHIPSET, 4 REQUESTER, 192 MB	2	2	2	2	2
NX5820-PSB	BASIC POWER SUPPLY COMPLEMENT	2	2	2	2	2
BRM36-0	BASIC 36U CABINET ASSEMBLY, STAND ALONE	1	1	1	1	1
RM2-TRM	APPEARANCE TRIM	1	1	1	1	1
NX5800-FAS	FRONT FASCIA COVERS	1	1	1	1	1
NX5000-IDP	ID PANEL	1	1	1	1	1
NX5820-SCP ¹	SYSTEM CONSOLE	1	1	1	1	1
NX5820-CM	CABLE MANAGER	1	1	1	1	1
NX5820-CMA	CABLE MANAGER	2	2	2	2	2
NX5822-2X ^{1,2}	COMPANION STYLES (INCLUDES CHANNELS)	1	1	1	1	1

NX5820 Product Configurations

Table 2–3. ClearPath Enterprise Server NX5822 Dual-Domain, Multi-Processor Models 32 through 72

Component Style	Description	NX5822 Models				
		32	42	52	62	72
One of: ³ VX1305-BSE or VX1505-BSE or ES5085R or ES2024R or ES5044R	Single server: Server (4U, 1-2 Processor Server) Server (7U, 1-4 Processor Server) Server (7U, 1-8 Processor Server) Server (7U, 1-2 Processor Server) Server (5U, 1-4 Processor Server)	1	1	1	1	1
A1003-MOD ^{1,4}	REMOTE SUPPORT MODEM	1	1	1	1	1

Notes:

1. Must be ordered separately.
2. See "companion package styles" for a list of components provided with this package style.
3. See Section 6 for configuration information on servers.
4. Required for domestic orders only.

Table 2–4. ClearPath Enterprise Server NX5822 Dual-Domain, Multi-Processors Models 73 through 78

Component Style	Description	NX5822 Models					
		73	74	75	76	77	78
NX580173-MOD	MODULE ASSY, SINGLE DOMAIN 73 (Includes Cooling, Power, ac Entry, Card Rack Modules)	1					
NX580273-CMP	DOMAIN '1' COMPONENTS 73	1					
NX582273-UDE	FUNCTIONAL S/W, IP EMULATION NX5822-73	1					
NX582173-MOD	MODULE ASSY, SINGLE DOMAIN 73 (Includes Cooling, Power, ac Entry, Card Rack Modules)		1				
NX582273-CMP	DOMAIN '1' COMPONENTS 73		1				
NX582274-UDE	FUNCTIONAL S/W, IP EMULATION NX5822-74		1				
NX582173-MOD	MODULE ASSY, SINGLE DOMAIN 73 (Includes Cooling, Power, ac Entry, Card Rack Modules)			1			
NX582273-CMP	DOMAIN '1' COMPONENTS 73			1			
NX582275-UDE	FUNCTIONAL S/W, IP EMULATION NX5822-75			1			
NX580173-MOD	MODULE ASSY, SINGLE DOMAIN 73 (Includes Cooling, Power, ac Entry, Card Rack Modules)				1		
NX582273-CMP	DOMAIN '1' COMPONENTS 73				1		
NX582276-UDE	FUNCTIONAL S/W, IP EMULATION NX5822-76				1		
NX580173-MOD	MODULE ASSY, SINGLE DOMAIN 73 (Includes Cooling, Power, ac Entry, Card Rack Modules)					1	
NX580273-CMP	DOMAIN '1' COMPONENTS 73					1	
NX582277-UDE	FUNCTIONAL S/W, IP EMULATION NX5822-77					1	
NX580173-MOD	MODULE ASSY, SINGLE DOMAIN 73 (Includes Cooling, Power, ac Entry, Card Rack Modules)						1

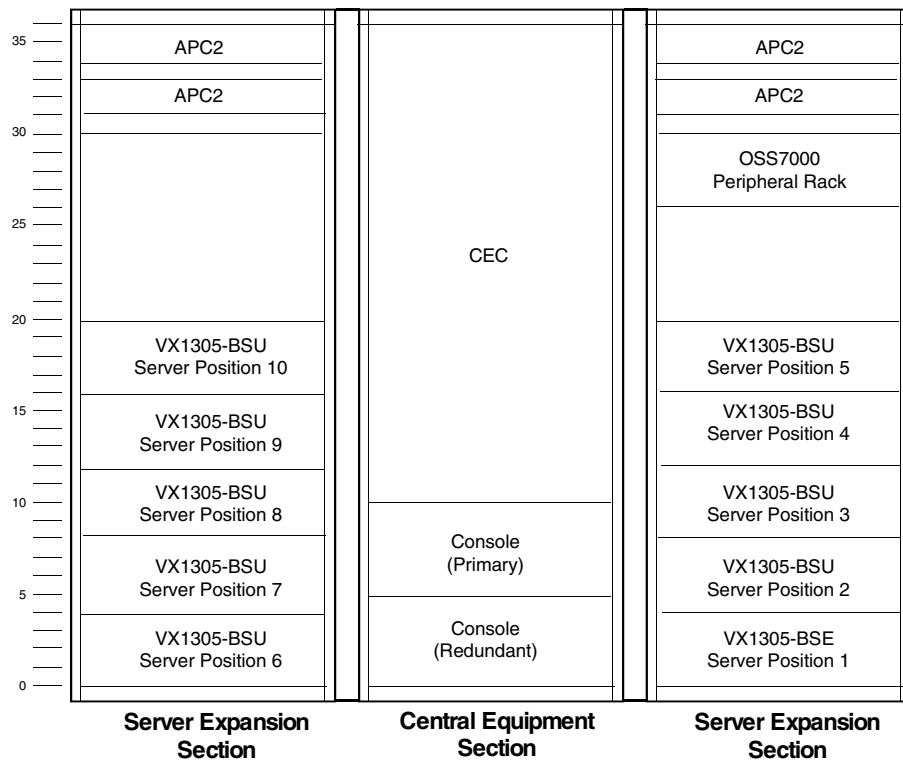
Table 2-4. ClearPath Enterprise Server NX5822 Dual-Domain, Multi-Processors Models 73 through 78

Component Style	Description	NX5822 Models					
		73	74	75	76	77	78
NX580273-CMP	DOMAIN '1' COMPONENTS 73						1
NX582278-UDE	FUNCTIONAL S/W, IP EMULATION NX5822-78						1
Common Components							
NX58712-PRM	STYLE PROM, NX5820-71/72	2	2	2	2	2	2
NX5821-CCC	DOMAIN 0 CARD COMPLEMENT, CIOM (1 PM, 2 CIOM, 1 KIOB)	1	1	1	1	1	1
NX5822-CC	DOMAIN 1 CARD COMPLEMENT, CIOM (1 PM, 2 CIOM, 1 KIOB)	1	1	1	1	1	1
PM3-CPU	PROCESSOR MODULE CARD COMPLEMENT	1	2	3	4	5	6
MSK208-384	MSUK BD, 2 CHIPSET, 8 REQUESTER, 384 MB	2	2	2	4		
MSK412-384	MSUK BD, 2 CHIPSET, 12 REQUESTER, 384 MB					4	4
NX5820-PSB	BASIC POWER SUPPLY COMPLEMENT	2	2	2	2	2	2
PS3300-3V	PWR SUP (3U) 360 dc to 3.3 dc			1	2	2	2
BRM36-0	BASIC 36U CABINET ASSEMBLY, STAND ALONE	1	1	1	1	1	1
RM2-TRM	APPEARANCE TRIM	1	1	1	1	1	1
NX5800-FAS	FRONT FASCIA COVERS	1	1	1	1	1	1
NX5000-IDP	ID PANEL	1	1	1	1	1	1
NX5820-SCP ¹	SYSTEM CONSOLE	1	1	1	1	1	1
NX5820-CM	CABLE MANAGER	1	1	1	1	1	1
NX5820-CMA	CABLE MANAGER	2	2	2	2	2	2
NX5822-2X ^{1,2}	COMPANION STYLES (INCLUDES CHANNELS)	1	1	1	1	1	1
One of: ³ VX1305-BSE or VX1505-BSE or ES5085R or ES2024R or ES5044R	Single server: Server (4U, 1-2 Processor Server) Server (7U, 1-4 Processor Server) Server (7U, 1-8 Processor Server) Server (7U, 1-2 Processor Server) Server (5U, 1-4 Processor Server)	1	1	1	1	1	1
A1003-MOD ^{1,4}	REMOTE SUPPORT MODEM	1	1	1	1	1	1

Notes:

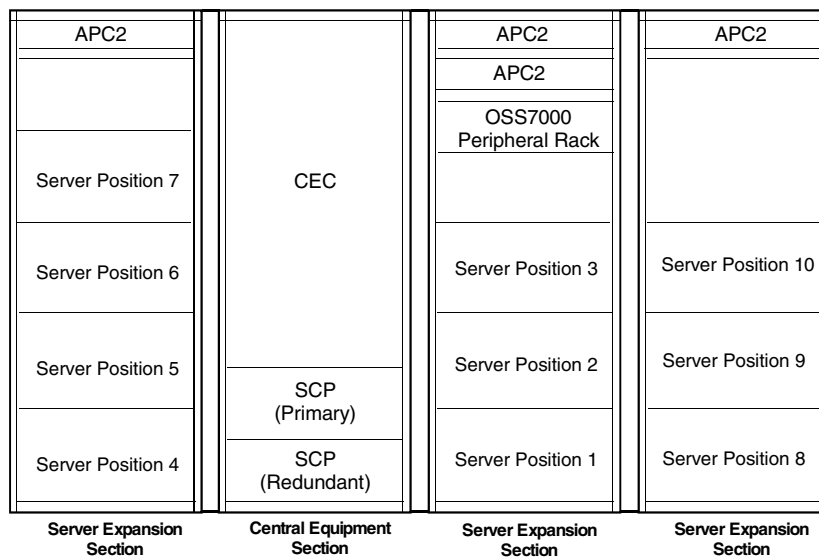
1. Must be ordered separately.
2. See "companion package styles" for a list of components provided with this package style.
3. See Section 6 for configuration information on servers.
4. Required for domestic orders only.

NX5820 Product Configurations



0706

Figure 2-3. NX5820 Dual-Domain Redundant System Cabinet Configuration, with VX1305 Servers



0707A

Figure 2-4. NX5820 Dual-Domain System Cabinet Configuration, with VX1505 Servers

NX5820 Companion Package Style

Table 2-5 summarizes the companion package styles required for the various NX5820 models. As noted in the component style charts, these package styles must be ordered separately from the system package style.

Additional components may be added through system upgrades (see "System Upgrades") or through system options (see Section 3).

Table 2-5. NX5820 Companion Styles

Component Style	Description	Package Styles	
		NX5821-1X ¹	NX5822-2X ²
ADP131-1T3	3 FOOT SCSI-1 TO SCSI-3 CABLE	2	4
B25-LC	POWER CORD:LINE CORD	1	1
BRM36-02	BASIC 36U CAB ASSY, ADD ON	1	1
CA322-SCI	SCSI-2W CHANNEL ADAPTER	2	4
CA600-OMC	CA600 OPERATIONAL MICROCODE	1	1
CA626-BAS	CTRL:HIG PERFORMANCE 802.3 BASE	1	2
CBL12-APX	CABLE ASSY, 12 FOOT APEX SWITCH	2	2
CBL131-10A	CABLE, 10 FOOT SCSI-1	2	-
CDR1740-SI	FEATURE, 17-40X SCSI CD-ROM	1	1
CMT25	RS232 25 FOOT CABLE	1	1
CMT3	CABLE, MODEM BELL, 3 FOOT	-	1
CSB3-10C	CABLE ASSEMBLY, CSB III, 10 FOOT	1	1
DSH600004-TBT	Ethernet cable 4 meters	2	4
DSH600007-TBT	Ethernet cable 7 meters	1	2
NX5820-DDA	SYSTEM CONSOLE, DUAL DOMAIN ADAPTER	-	1
NX5820-DOC	OPERATIONAL DOCUMENTS	1	1
NX5820-MNT	MAINTENANCE KIT	1	1
NX5820-OPC	OPERATIONAL CODE	1	1
OSD1001-QTA	FEATURE, QIC TAPE	1	1
OSD4111-S20	FEATURE, RRM, 4.1 GB (UF) 180 BYTE SECTOR	2	2
OSS7000-NDY	RACK, SCSI NARROW DIFFERENTIAL	1	1
OSS7000-SBO	SPLIT BUS UPGRADE	1	1
RM2-AP2	APC 2U RM-MODULE	1	2
RML36-AFT	LEFT MOUNT, TOP, REAR, FLAT SPACER	1	1
SCP5820-CMP	CONSOLE COMPONENTS	1	1
VX4000-XCR	TRANSCEIVER, AUI/10BASET	2	4
VX4008-SWT	8 PORT MON/KEYBD/MOUSE SWITCH	1	1
VX5000-SWH	CS SWITCHING HUB	1	1

Notes:

1. Required for System Models NX5821-31 to -71 (SDSP).
2. Required for System Models NX5822-32 to -78 (DDDP).

NX5820 K Products

Table 2–6 lists the basic hardware components associated with each NX5820 K product model. The minimum and maximum system configurations are as follows:

Single-Domain, Single-Processor (SDSP) NX5821 – BAS Models

- Requires style NX5821-1D1
- Minimum system performance – NX5821-PL3 (w/PROM NX58231-PRK)
Maximum system performance – NX5821-PL7(w/PROM NX58271-PRK)
- One processor module (PM)
- One I/O module (CIOM) with up to four channel service bus (CS-bus) interfaces per CIOM board.
- One memory storage unit with 192 MB storage minimum per domain (Optional 1152 MB per domain maximum). Memory has 4 requesters.
- Single server containing its own processing modules, memory, and peripheral subsystem, with up to five-servers per domain optional.

Dual-Domain, Dual Processor (DDDP) NX5822 – BAS Models

- Requires style NX5822-2D2
- Minimum system performance level – NX5822–PL3 (w/PROM NX58232-PRK)
Maximum system performance level – NX5822–PL7 (w/PROM NX58272-PRK)
- Two processor modules (PM)
- Two to twelve I/O modules (CIOM). One to five per domain for CS-Bus connectivity with up to four channel service bus (CS-Bus) interfaces per CIOM. Optional one CIOM in domain 0 is dedicated for Multi IOU functionality and one CIOM in domain 1 is dedicated for TCU functionality. These can not be used for CS-Bus connectivity.
- Two (one per domain) memory storage units with 192 MB storage minimum per domain. Memory has four requesters.
- Single server containing its own processing modules, memory, and peripheral subsystem, with up to five servers per domain optional.

Dual-Domain, Multiple-Processor (DDMP) NX5822 – BAS Models

- Requires one of the following styles NX5822-2D3 to NX5822-2DA
- Minimum system performance level – NX5823–PL7 (w/PROM NX58273-PRK)
Maximum system performance level – NX58210–PL7 (w/PROM NX582710-PRK)
- Three to ten processor modules (PM) depending on model
- Two to twelve I/O modules (CIOM). One to five per domain for CS-Bus connectivity with up to four channel service bus (CS-Bus) interfaces per CIOM. Optional one CIOM in domain 0 is dedicated for Multi IOU functionality and one CIOM in domain 1 is dedicated for TCU functionality. These can not be used for CS-Bus connectivity.
- One to two memory storage units with 192-MB or 384-MB storage per domain depending on model
- Single server containing its own processing modules, memory, and peripheral subsystem, with up to five-servers per domain optional.

Notes:

1. *The CEC contains two distinct and independent power and maintenance domains to support the functional hardware in the respective domain.*
2. *Cooling is shared between domains.*
3. *Redundant power is optional.*

NX5820 K Products

Table 2–6. ClearPath Enterprise Server NX5820 K Product Models

Model (Performance Level)	Processor Modules	Memory Storage Units ¹	CIOM Modules ² Std/Max	Servers ³ Std/Max	System (SCP) Console Std/Max	SCSI-2W Channels ⁴	802.3 Channels	Maint LAN Channel	Maint Hub Std/Max	Switching Hub ⁵ Std/Max
NX5820 K Single-Domain, Single-Processor (SDSP) Models										
NX5821-BAS NX5821-1D1 (with NX5821-PL3)	1	1/3	1/6	1/5	1	2	1	1	1/1	1/Unlimited
NX5821-BAS /NX5821-1D1 (with NX5821-PL4)	1	1/3	1/6	1/5	1	2	1	1	1/1	1/Unlimited
NX5821-BAS NX5821-1D1 (with NX5821-PL5)	1	1/3	1/6	1/5	1	2	1	1	1/1	1/Unlimited
NX5821-BAS NX5821-1D1 (with NX5821-PL6)	1	1/3	1/6	1/5	1	2	1	1	1/1	1/Unlimited
NX5821-BAS NX5821-1D1 (with NX5821-PL7)	1	1/3	1/6	1/5	1	2	1	1	1/1	1/Unlimited
NX5820 K Dual-Domain, Dual-Processor (DDDP) Models										
NX5822-BAS NX5822-2D2 (with NX5822-PL3)	2	2/6	2/12	1/10	1/2	4	2	2	1/2	1/Unlimited
NX5822-BAS NX5822-2D2 (with NX5822-PL4)	2	2/6	2/12	1/10	1/2	4	2	2	1/2	1/Unlimited
NX5822-BAS NX5822-2D2 (with NX5822-PL5)	2	2/6	2/12	1/10	1/2	4	2	2	1/2	1/Unlimited
NX5822-BAS NX5822-2D2 (with NX5822-PL6)	2	2/6	2/12	1/10	1/2	4	2	2	1/2	1/Unlimited
NX5822-BAS NX5822-2D2 (with NX5822-PL7)	2	2/6	2/12	1/10	1/2	4	2	2	1/2	1/Unlimited
NX5820 K Dual-Domain, Multi-Processor (DDMP) Models										
NX5822-BAS /NX5822-2D3 (with NX5823-PL7)	3	2/6	2/12	1/10	1/2	4	2	2	1/2	1/Unlimited
NX5822-BAS NX5822-2D4 (with NX5824-PL7)	4	2/6	2/12	1/10	1/2	4	2	2	1/2	1/Unlimited
NX5822-BAS NX5822-2D5 (with NX5825-PL7)	5	2/6	2/12	1/10	1/2	4	2	2	1/2	1/Unlimited
NX5822-BAS X5822-2D6 (with NX5826-PL7)	6	4/6	2/12	1/10	1/2	4	2	2	1/2	1/Unlimited

Table 2–6. ClearPath Enterprise Server NX5820 K Product Models

Model (Performance Level)	Processor Modules	Memory Storage Units ¹	CIOM Modules ² Std/Max	Servers ³ Std/Max	System (SCP) Console Std/Max	SCSI-2W Channels ⁴	802.3 Channels	Maint LAN Channel	Maint Hub Std/Max	Switching Hub ⁵ Std/Max
NX5822-BAS NX5822-2D7 (with NX5827-PL7)	7	4/6	2/12	1/10	1/2	4	2	2	1/2	1/Unlimited
NX5822-BAS NX5822-2D8 (with NX5828-PL7)	8	4/6	2/12	1/10	1/2	4	2	2	1/2	1/Unlimited
NX5822-BAS NX5822-2DA (with NX58210-PL7)	10	4/6	2/12	1/10	1/2	4	2	2	1/2	1/Unlimited

Notes:

1. The NX5820 K utilizes two styles of memory boards (MSA and MSK). The MSA104 boards are to be configured in all systems up to and including models NX5821-1D1 and NX5822-2D2. The MSK208 boards are to be configured in system models NX5822-2D3 to -2D6. The MSK412 boards are to be configured in models NX5822-2D7, NX5822-2D8 and -2DA.
2. Up to five CIOMs can be configured per domain to provide CS-Bus connectivity. Optional one CIOM in domain 0 is dedicated for Multi IOU functionality and one CIOM in domain 1 is dedicated for TCU functionality. These can not be used for CS-Bus connectivity.
3. Each model includes a basic server; up to five servers per domain are configurable.
4. Dedicated SCSI-2W channels (2 per domain) for connection of OSS7000 device (QIC tape, CD-ROM, and hard disk).
5. Space provided for two switching Hubs within CEC cabinet, additional hubs can be configured as required.

NX5820 K Product Configurations

This subsection describes the NX5820 K product configurations.

ClearPath Enterprise Server NX5821–BAS Single-Domain, Single-Processor (SDSP) Configurations

- Table 2–7 lists component styles for these models.
- Figure 2–5 and Figure 2–6 show the hardware configurations for system cabinets containing VX1305- and VX1505-based servers, respectively.
- Processor styles are listed later in this section.
- Power/cooling options are listed later in this section.
- System upgrades are listed later in this section.
- Section 3 provides guidelines for adding system options.

NX5820 K Product Configurations

Table 2-7. ClearPath Enterprise Server NX5821-BAS Single-Domain, Single-Processor Configurations

Package Style NX5821-BAS		
Component Style	Description	Qty.
ADP68501-FTF	68F/50F SCSI ADAPTER	2
B25-LC	POWER CORD:LINE CORD	1
BRM36-0	BASIC 36U CAB ASSEMBLY, STAND ALONE	1
BRM36-02	BASIC 36U CAB ASSEMBLY, STAND ALONE	1
CA322-SCI	SCSI-2W CHANNEL ADAPTER	1
CA600-OMC	CA600 OPERATIONAL MICROCODE	1
CA626-BAS	CTRL:HIG PERFORMANCE 802.3 BASE	1
CBL12-APX	CABLE ASSY, 12 FOOT APEX SWITCH	2
CBL131-10A	CABLE, 10-FOOT SCSI 1	2
CDR1740-SI	17X-40X SCSI CDROM	2
CSB3-10C	CABLE ASSEMBLY, CSB III, (COAX)	1
DIM10072-128	PC100 SDRAM 128MB	1
DR20001-OK1	OK KIT	1
DR200081-Z	DUAL RACK, AC PWR	1
DSH600004-TBT	4 METER ETHERNET CABLE	2
DSH600007-TBT	7 METER ETHERNET CABLE	1
DSR2500-512	500 MHz, W/512K	1
EVG2100-P	15" CLR MON HIGH-END	1
HDL917-W	9-GB P-WIDE SCSI	1
NX5000-IDP	NX5000 ClearPath ID PANEL	1
NX5800-FAS	FRONT FASCIA COVERS	1
NX580131-MOD	MODULE ASSY, SINGLE DOMAIN (Includes Cooling, Power, AC Entry, Card Rack Modules)	1
NX5820-CM	NX5820 CABLE MANAGER	1
NX5820-CMA	NX5820 CABLE MANAGER, ADDITIONAL	1
NX5820-DOC	OPERATIONAL DOCUMENTS	1
NX5820-MNT	MAINTENANCE KIT	1
NX5820-OPC	OPERATIONAL CODE	1
NX5820-PSB	BASIC POWER SUPPLY COMPLEMENT	1
NX5821-CCK	DOMO CARD COMPL, CIOM (1 CIOM, 1 KIUB)	1
OS1000-CUS	CUSTOMER SU (PC not NT)	1
OSD1001-QTA	FEATURE, QIC TAPE	1
OSD4111-S20	FEATURE, RRM, 4.1-GB 180 BYTE SECTOR	2
OSS7000-NDY	RACK, SCSI NARROW DIFFERENTIAL	1
OSS7000-SBO	SPLIT BUS UPGRADE	1

Table 2-7. ClearPath Enterprise Server NX5821-BAS Single-Domain, Single-Processor Configurations

Package Style NX5821-BAS		
Component Style	Description	Qty.
PCK104-SKB	KEYBOARD	1
PCK1-EXT	CABLE, M TO F PS2	2
PCT1200-INT	1.2 GB QIC TAPE	1
PWM1-PS2	MOUSE 2-BUTTON	1
RM2-AP2	APC II 2U RM-MODULE	1
RM2-TRM	APPEARANCE TRIM	1
RML36-AFT	LEFT MOUNT, TOP REAR FLAT SPACER	1
SCP5820-CMP	CONSOLE COMPONENTS	1
SVG100-EXT	M TO F SVGA EXT CBL	1
USE1936-LC8	POWER 'Y' CABLE, 250 VAC, 10 AMP	1
UW6021-SDK	SOFTWARE DEV KIT	1
UXW21-PED	SCO UW PERS	1
UXW2-DRV	SCO DRIVER	1
VX1300-FAS	FASCIA, SERVER VX1300 (DR/2)	1
VX1820-CPS	ClearPath SERVER APPLICATION	1
VX4000-XCR	TRANSCEIVER, AUJ/10BASET	2
VX4008-SWT	8 PORT MON/KEYBD/MOUSE SWITCH	1
VX5000-SWH	CS SWITCHING HUB	1
NX5821-1D1	1X NX5820 K	1
One of: ¹ VX1305-BSE or VX1505-BSE or ES5085R or ES2024R or ES5044R	Single server: Server (4U, 1-2 Processor Server) Server (7U, 1-4 Processor Server) Server (7U, 1-8 Processor Server) Server (7U, 1-8 Processor Server) Server (5U, 1-2 Processor Server)	1
A1003-MOD ²	REMOTE SUPPORT MODEM	1

Notes:

1. See Section 6 for configuration information on servers.
2. Required for domestic orders only.

NX5820 K Product Configurations

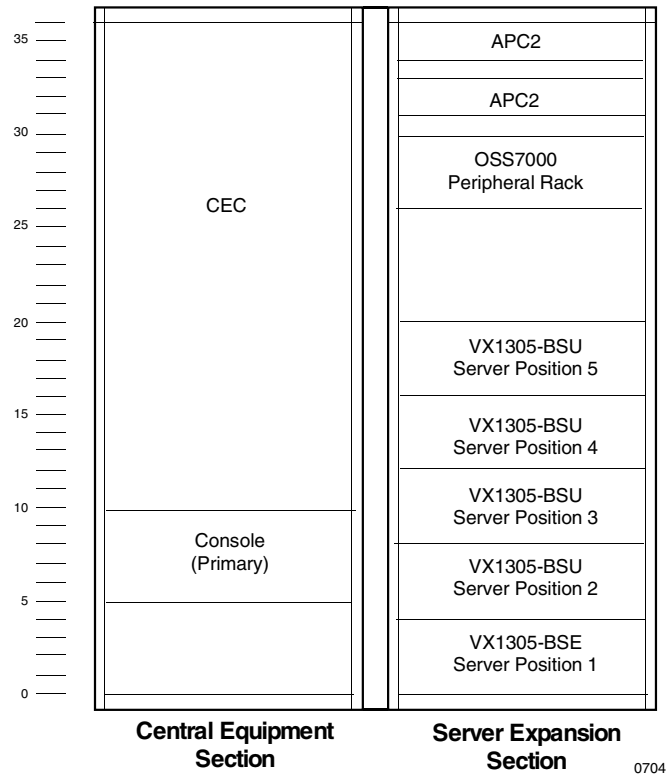
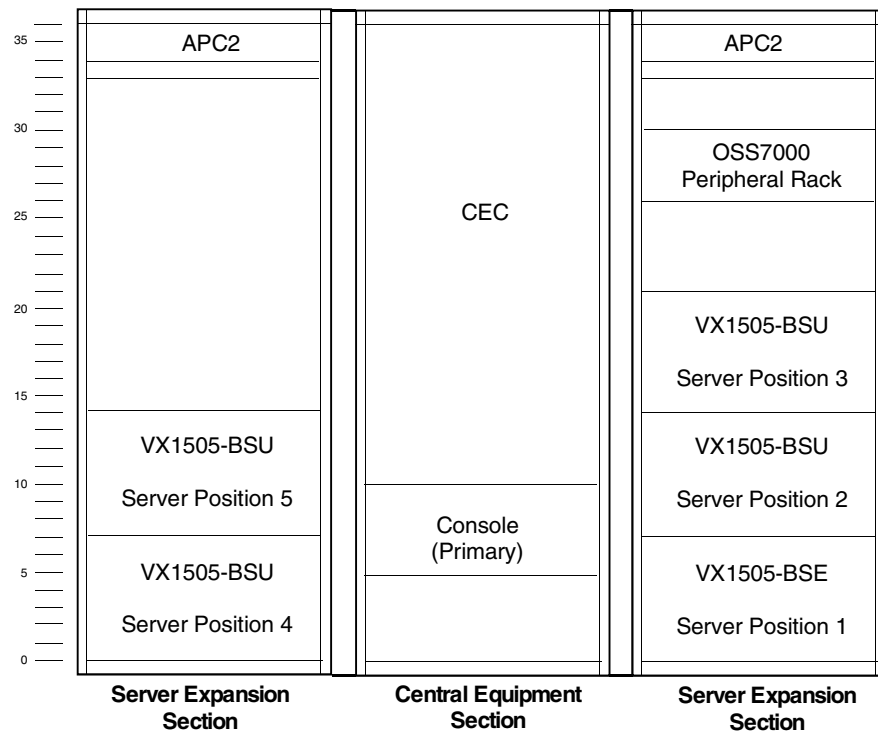


Figure 2-5. NX5820 K Single-Domain System Cabinet Configuration with VX1305 Servers



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Figure 2–6. NX5820 K Single-Domain Cabinet Configuration, with VX1505 Servers

ClearPath Enterprise Server NX5822–BAS Dual-Domain Configurations

- Table 2–8 lists component styles for these models.
- Figure 2–7 and Figure 2–8 show the hardware configurations for system cabinets containing VX1305 and VX1505 based servers, respectively.
- Processor styles are listed later in this section.
- Power/cooling options are listed later in this section.
- System upgrades are listed later in this section.
- Section 3 provides guidelines for adding system options.

NX5820 K Product Configurations

Table 2–8. ClearPath Enterprise Server NX5822–BAS Dual-Domain Configurations

Package Style NX5822–BAS		
Component Style	Description	Number of Processors or Common Components
PROCESSORS		
NX5822-2D2	DUAL DOMAIN	2
NX5822-2D3	DUAL DOMAIN	3
NX5822-2D4	DUAL DOMAIN	4
NX5822-2D5	DUAL DOMAIN	5
NX5822-2D6	DUAL DOMAIN	6
NX5822-2D7	DUAL DOMAIN	7
NX5822-2D8	DUAL DOMAIN	8
NX5822-2DA	DUAL DOMAIN	10
Common Components		
ADP131-1T3	3 FT SCSI-1 to SCSI-3 CBL	4
ADP68501-FTF	68F/50F SCSI ADAPTER	2
B25-LC	POWER CORD:LINE CORD	1
BRM36-0	BASIC 36U CAB ASSEMBLY, STAND ALONE	1
BRM36-02	BASIC 36U CAB ASSEMBLY, STAND ALONE	1
CA322-SCI	SCSI-2W CHANNEL ADAPTER	4
CA600-OMC	CA600 OPERATIONAL MICROCODE	1
CA626-BAS	CTRL:HIG PERFORMANCE 802.3 BASE	2
CBL12-APX	CABLE ASSY, 12 FOOT APEX SWITCH	2
CDR1740-SI	17X-40X SCSI CDROM	2
CSB3-10C	CABLE ASSEMBLY, CSB III, (COAX)	1
DIM10072-128	PC100 SDRAM 128MB	1
DR20001-OK1	OK KIT	1
DR200081-Z	DUAL RACK, AC PWR	1
DSH600004-TBT	4 METER ETHERNET CABLE	4
DSH600007-TBT	7 METER ETHERNET CABLE	2
DSR2500-512	500-MHz, W/512K	1
EVG2100-P	15" CLR MON HIGH-END	1
HDL917-W	9-GB P-WIDE SCSI	1
NX5000-IDP	NX5000 ClearPath ID PANEL	1
NX5800-DDA	SYSTEM CONSOLE, DUAL DOMAIN ADAPTER	1
NX5800-FAS	FRONT FASCIA COVERS	1
NX580131-MOD	MODULE ASSY, SINGLE DOMAIN (Includes Cooling, Power, AC Entry, Card Rack Modules)	1
NX580232-CMP	DOMAIN '1' COMPONENTS	1
NX5820-CM	NX5820 CABLE MANAGER	1
NX5820-CMA	NX5820 CABLE MANAGER, ADDITIONAL	2

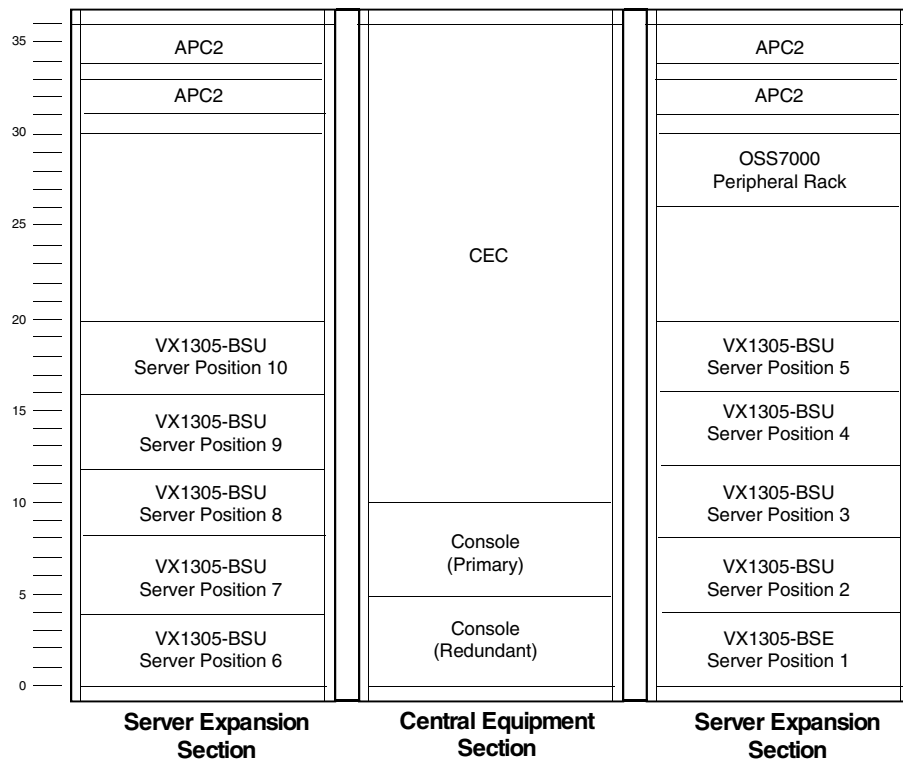
Table 2–8. ClearPath Enterprise Server NX5822–BAS Dual-Domain Configurations

Package Style NX5822–BAS		
Component Style	Description	Number of Processors or Common Components
NX5820-DOC	OPERATIONAL DOCUMENTS	1
NX5820-MNT	MAINTENANCE KIT	1
NX5820-OPC	OPERATIONAL CODE	1
NX5820-PSB	BASIC POWER SUPPLY COMPLEMENT	2
NX5821-CCK	DOM0 CARD COMPL, CIOM (1 CIOM, 1 KIUB)	1
NX5822-CCK	DOM1 CARD COMPL, CIOM(1 CIOM, 1 KIUB)	1
OS1000-CUS	CUSTOMER SU (PC not NT)	1
OSD1001-QTA	FEATURE, QIC TAPE	1
OSD4111-S20	FEATURE, RRM, 4.1-GB 180 BYTE SECTOR	2
OSS7000-NDY	RACK, SCSI NARROW DIFFERENTIAL	1
OSS7000-SBO	SPLIT BUS UPGRADE	1
PCK104-SKB	KEYBOARD	1
PCK1-EXT	CABLE, M TO F PS2	2
PCT1200-INT	1.2 GB QIC TAPE	1
PWM1-PS2	MOUSE 2-BUTTON	1
RM2-AP2	APC II 2U RM-MODULE	2
RM2-TRM	APPEARANCE TRIM	1
RML36-AFT	LEFT MOUNT, TOP REAR FLAT SPACER	1
SCP5820-CMP	CONSOLE COMPONENTS	1
SVG100-EXT	M TO F SVGA EXT CBL	1
USE1936-LC8	POWER 'Y' CABLE, 250 VAC, 10 AMP	1
UW6021-SDK	SOFTWARE DEV KIT	1
UXW21-PED	SCO UW PERS	1
UXW2-DRV	SCO DRIVER	1
VX1300-FAS	FASCIA, SERVER VX1300 (DR/2)	1
VX1820-CPS	ClearPath SERVER APPLICATION	1
VX4000-XCR	TRANSCIVER, AUI/10BASET	4
VX4008-SWT	8 PORT MON/KEYBD/MOUSE SWITCH	1
VX5000-SWH	CS SWITCHING HUB	1
One of: ¹ VX1305-BSE or VX1505-BSE or ES5085R or ES2024R or ES5044R	Single server: Server (4U, 1-2 Processor Server) Server (7U, 1-4 Processor Server) Server (7U, 1-8 Processor Server) Server (7U, 1-8 Processor Server) Server (5U, 1-2 Processor Server)	1
A1003-MOD ²	Remote support modem	1

Notes:

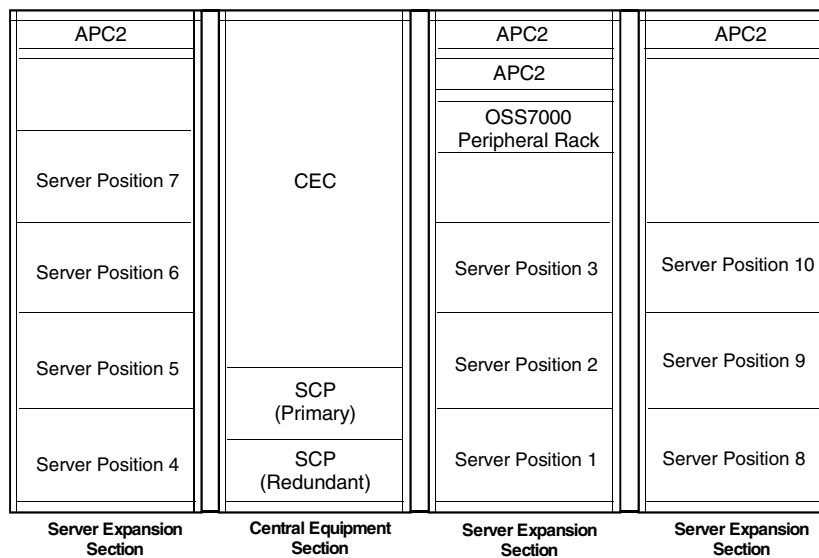
1. See Section 6 for configuration information on servers. All orders must include one server.
2. Required for domestic orders only.

NX5820 K Product Configurations



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Figure 2–7. NX5820 K Dual-Domain Redundant System Cabinet Configuration, with VX1305 Servers



0707A

Figure 2–8. NX5820 K Dual-Domain System Cabinet Configuration, with VX1505 Servers

NX5820 K Processor Package Style

Table 2–9 summarizes the processor with various performance levels package styles required for the various NX5820 K models. As noted in the component style charts, these package styles must be ordered separately from the system package style.

Additional components may be added through system upgrades (see "System Upgrades") or through system options (see Section 3).

Table 2–9. NX5820 K Processor Package Styles

Component Style	Description	Package Style NX5821–1Dx Model	Package Style NX5822–2Dx Models								
		x=1	2	3	4	5	6	7	8	A	
Single-Domain, Single Processor Configuration											
PM3-CPU	PROCESSOR MODULE CARD	1									
MSA104-192	MSUA BOARD, 4 REQUESTOR, W/192-MB	1									
Order one of the following:		1									
NX5821-PL3 with NX58231-PRK or NX5821-PL4 with NX58241-PRK or NX5821-PL5 with NX58251-PRK or NX5821-PL6 with NX58261-PRK or NX5821-PL7 with NX58271-PRK	FUNCTIONAL S/W, PERFORMANCE LEVEL 31K, W/PROM STYLE FUNCTIONAL S/W, PERFORMANCE LEVEL 41K, W/PROM STYLE FUNCTIONAL S/W, PERFORMANCE LEVEL 51K, W/PROM STYLE FUNCTIONAL S/W, PERFORMANCE LEVEL 61K, W/PROM STYLE FUNCTIONAL S/W, PERFORMANCE LEVEL 71K, W/PROM STYLE										

NX5820 K Product Configurations

Table 2-9. NX5820 K Processor Package Styles

Component Style	Description	Package Style NX5821-1Dx Model	Package Style NX5822-2Dx Models							
		x=1	2	3	4	5	6	7	8	A
Dual-Domain, Dual-Processor Configuration										
PM3-CPU	PROCESSOR MODULE CARD		2							
MSA104-193	MSUA BOARD, 4 REQUESTOR, W/192-MB		2							
Order one of the following: NX5822-PL3 with NX58232-PRK or NX5822-PL4 with NX58242-PRK or NX5822-PL5 with NX58252-PRK or NX5822-PL6 with NX58262-PRK or NX5822-PL7 with NX58272-PRK	FUNCTIONAL S/W, PERFORMANCE LEVEL 32K, W/PROM STYLE FUNCTIONAL S/W, PERFORMANCE LEVEL 42K, W/PROM STYLE FUNCTIONAL S/W, PERFORMANCE LEVEL 52K, W/PROM STYLE FUNCTIONAL S/W, PERFORMANCE LEVEL 62K, W/PROM STYLE FUNCTIONAL S/W, PERFORMANCE LEVEL 72K, W/PROM STYLE		1							
Dual-Domain, Multi-Processor Configurations										
PM3-CPU	PROCESSOR MODULE CARD			3	4	5	6	7	8	10
MSK208-384	MSUK BOARD, 8 REQUESTOR, W/384-MB			2	2	2	4			
MSK412-384	MSUK BOARD, 12 REQUESTOR, W/384-MB							4	4	4
PS3300-3V	POWER SUPPLY (3U), 360 VDC TO 3.3 VDC						2	2	2	2
NX5823-PL7	FUNCTIONAL S/W, PERFORM. LEVEL 73K			1						
NX5824-PL7	FUNCTIONAL S/W, PERFORM. LEVEL 74K				1					
NX5825-PL7	FUNCTIONAL S/W, PERFORM. LEVEL 75K					1				
NX5826-PL7	FUNCTIONAL S/W, PERFORM. LEVEL 76K						1			
NX5827-PL7	FUNCTIONAL S/W, PERFORM. LEVEL 77K							1		
NX5828-PL7	FUNCTIONAL S/W, PERFORM. LEVEL 78K								1	
NX58210-PL7	FUNCTIONAL S/W, PERFORM. LEVEL 7AK									1
NX58273-PRK	PROM LEVEL 73K			1						
NX58274-PRK	PROM LEVEL 74K				1					
NX58275-PRK	PROM LEVEL 75K					1				
NX58276-PRK	PROM LEVEL 76K						1			
NX58277-PRK	PROM LEVEL 77K							1		
NX58278-PRK	PROM LEVEL 78K								1	
NX582710-PRK	PROM LEVEL 7AK									1

Cables

Refer to the I/O Configuration Guide for a comprehensive list of cable options available with ClearPath Enterprise Server NX5820 and NX5820 K products.

Power Layout and Requirements

See Figure 2-9 for the power layout (represents power layout for each domain) for basic, redundant, and additional power (no additional power supplies are required if adding MSUA memory board with 4 requestor card to this domain) when required.

Slot	13	12	11	10	9	8	7	6	5	4	3	2	1
Pow. Cntl. Card	+5V P/S	+5V P/S	+5V P/S			+3.3V P/S	+3.3V P/S	+3.3V P/S	+3.3V P/S	+3.3V P/S	AC/DC Bulk	AC/DC Bulk	AC/DC Bulk
	B	R	B			B	MSU K3	R	MSU K2	B	B	R	B

Component Side

Legend:

- B = Basic Power Supply + Bulk Supply Compliment
- R = Add for Redundancy
- MSUK2 = Add for installation of a second MSUK Memory Board (8 or 12 Requestor Card), to this domain
- MSUK3 = Add for installation of a third MSUK Memory Board (8 or 12 Requestor Card), to this domain

0708

Figure 2-9. Power Layout

Redundant Power/Cooling

Redundant power option is available for the NX5820 and NX5820 K product. Order one component style NX5800-RPW per domain. This style includes only redundant power and contains one ac/dc bulk power supply, one +5 volts dc/dc power supply, and one +3.3 volts dc/dc power supply.

Redundant cooling is included in the basic cabinet and not part of the above style.

NX5820 System Upgrades

Table 2–10 lists the NX5820 System upgrades options. Figure 2–10 shows the upgrade paths for the NX5820 product models listed in Table 2–10. Table 2–11 through Table 2–13 list the components included within the upgrade package styles.

Table 2–10. NX5820 System Upgrade Options Summary

Upgrade Type	Converts From	Converts To	See Table
Single Domain Single Processor Model Upgrades (SDSP to SDSP)	NX5821-31 NX5821-41 NX5821-51 NX5821-61	NX5821-41 NX5821-51 NX5821-61 NX5821-71	2–11
Single Domain Single Processor to Dual Domain Dual Processor Upgrades (SDSP to DDDP)	NX5821-31 NX5821-41 NX5821-51 NX5821-61 NX5821-71	NX5822-32 NX5822-42 NX5822-52 NX5822-62 NX5822-72	2–12
Dual Domain Multi Processor Upgrades (DDMP to DDMP)	NX5822-32 NX5822-42 NX5822-52 NX5822-62 NX5822-72 NX5822-73 NX5822-74 NX5822-75 NX5822-76 NX5822-77	NX5822-42 NX5822-52 NX5822-62 NX5822-72 NX5822-73 NX5822-74 NX5822-75 NX5822-76 NX5822-77 NX5822-78	2–13

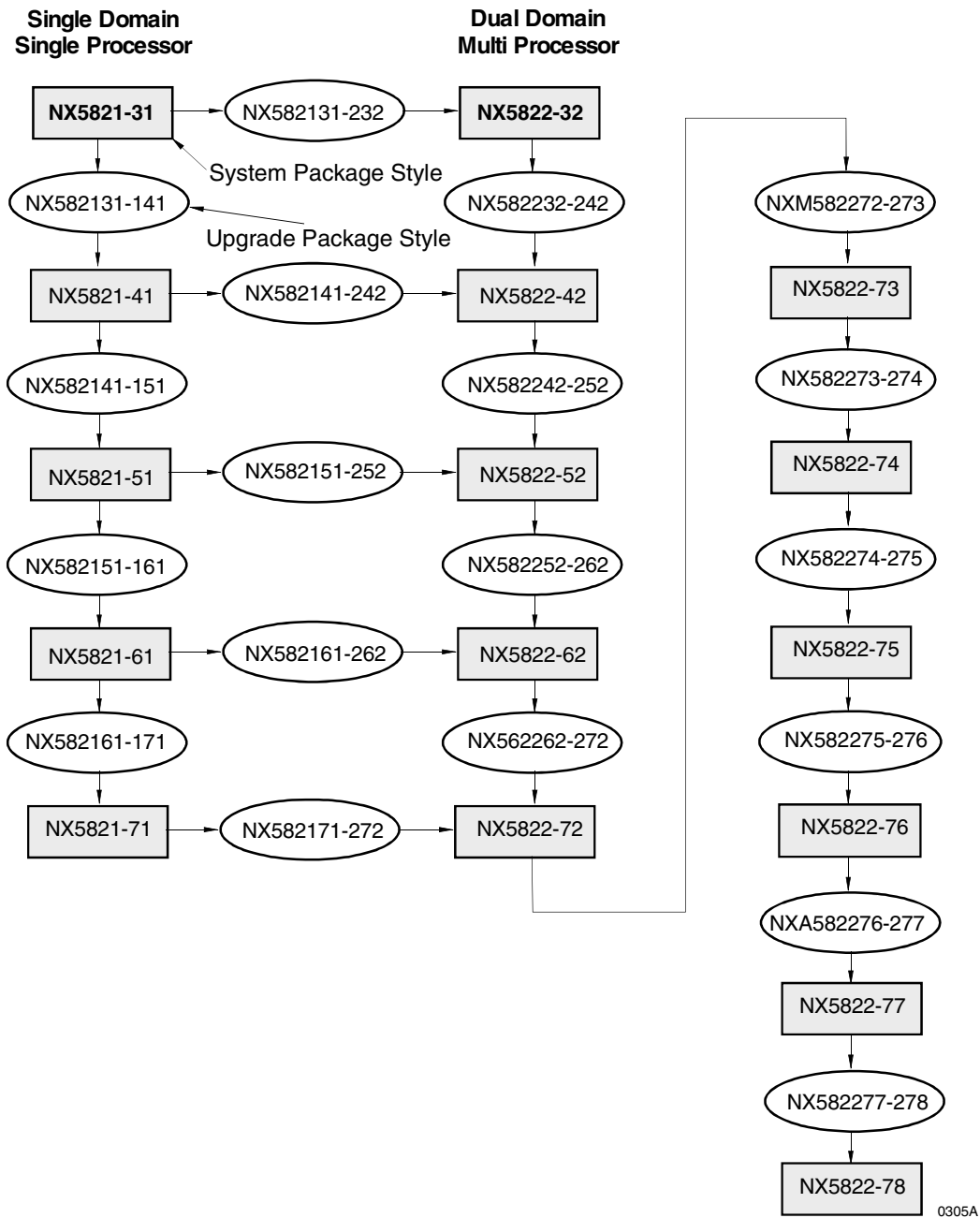


Figure 2-10. NX5820 Upgrade Diagram

NX5820 System Upgrades

Table 2–11. NX5820 Single Domain, Single Processor Model Upgrades (SDSP to SDSP)

Package Style	Converts		Component Style	Component Style Description
	From	To		
NX582131-141	NX5821-31	NX5821-41	NX582141-UDE	FUNCTIONAL S/W, IP EMULATION NX5821-41
			NX58412-PRM	PROM, NX5820-41/42
NX582141-151	NX5821-41	NX5821-51	NX582151-UDE	FUNCTIONAL S/W, IP EMULATION NX5821-51
			NX58512-PRM	PROM, NX5820-51/52
NX582151-161	NX5821-51	NX5821-61	NX582161-UDE	FUNCTIONAL S/W, IP EMULATION NX5821-61
			NX58612-PRM	PROM, NX5820-61/62
NX582161-171	NX5821-61	NX5821-71	NX582171-UDE	FUNCTIONAL S/W, IP EMULATION NX5821-71
			NX58712-PRM	PROM, NX5820-71/72

Table 2–12. NX5820 Single Domain Single Processor to Dual Domain Dual Processor Upgrades (SDSP to DDDP)

Package Style	Converts		Component Style	Component Style Description
	From	To		
NX582131-232	NX5821-31	NX5822-32	NX580232-CMP	DOMAIN '1' COMPONENTS
			NX58312-PRM	PROM, NX5820-31/32
NX582141-242	NX5821-41	NX5822-42	NX582242-CMP	DOMAIN '1' COMPONENTS 42
			NX58412-PRM	PROM, NX5820-41/42
NX582151-252	NX5821-51	NX5822-52	NX582252-CMP	DOMAIN '1' COMPONENTS 52
			NX58512-PRM	PROM, NX5820-51/52
NX582161-262	NX5821-61	NX5822-62	NX582262-CMP	DOMAIN '1' COMPONENTS 62
			NX58612-PRM	PROM, NX5820-61/62
NX582171-272	NX5821-71	NX5822-72	NX582272-CMP	DOMAIN '1' COMPONENTS 72
			NX58712-PRM	PROM, NX5820-71/72
Components required for all above package styles				
			NX5822-CCC	DOM 1, CARD COMPL, CIOM (1 PM, 2 CIOM, 1 IOB)
			MSA104-192	MSUA BD, 1 CHIPSET, 4 REQUESTER, 192 MB (Qty. 1)
			NX5820-PSB	BASIC POWER SUPPLY COMPLEMENT
			ADP131-1T3	3 FT SCSI-1 to SCSI-3 CBL (Min. Qty.4)
			NX5800-DDA	SYSTEM CONSOLE, DUAL DOMAIN ADAPTER
			CA322-SCI	SCSI 2W CHANNEL ADAPTER (Min. Qty.2)
			CA626-BAS	CTRL:HIGH PERFORM 802.3 BASE (Min. Qty.2)
			RM3-APC	APC 3U RM-MODULE
			NX5820-CMA	CABLE MANAGER (Min. Qty.1)
			CMT3	CABLE, MODEM BELL, 3 FEET
			CA600-OMC	CA600 OPERATIONAL MICROCODE
			DSH600007-TBT	ETHERNET CABLE, 7M (Min. Qty.2)
			VX4000-XCR	TRANSCEIVER, AUI/10BASET (Min. Qty.2)

Table 2–13. NX5820 Dual Domain Multi Processor Upgrades (DDMP to DDMP)

Package Style	Converts		Component Style	Component Style Description
	From	To		
NX582232-242	NX5822-32	NX5822-42	NX582242-UDE	FUNCTIONAL S/W, IP EMULATION NX5822-42
			NX58412-PRM	PROM, NX5820-41/42 (Min. Qty.2)
NX582242-252	NX5822-42	NX5822-52	NX582252-UDE	Functional S/W, IP EMULATION NX5822-52
			NX58512-PRM	PROM, NX5820-51/52 (Min. Qty.2)
NX582252-262	NX5822-52	NX5822-62	NX582162-UDE	FUNCTIONAL S/W, IP EMULATION NX5822-62
			NX58612-PRM	PROM, NX5820-61/62 (Min. Qty.2)
NX582262-272	NX5822-62	NX5822-72	NX582272-UDE	FUNCTIONAL S/W, IP EMULATION NX5822-72
			NX58712-PRM	PROM, NX5820-71/72 (Min. Qty.2)
NXM582272-273	NX5822-72	NX5822-73	PM3-CPU	PROCESSOR MODULE CARD COMPLEMENT
			MSK208-384	MSUK Board, 2 chipset, 8 requester, 384 MB (Qty. 1)
			MSK208-MEM	MSUK Board, 2 chipset, 8 requester, 0 MB (Qty. 1)
NX582273-274	NX5822-73	NX5822-74	PM3-CPU	Processor module card complement
NX582274-275	NX5822-74	NX5822-75	PM3-CPU	Processor module card complement
NX582275-276	NX5822-75	NX5822-76	PM3-CPU	Processor module card complement
			PS3300-3V	PWR SUP (3U) 360 dc to 3.3 dc (Qty. 2)
			MSK208-384	MSUK Board, 2 chipset, 8 requester, 384-MB (Qty. 2)
NXA582276-277 ¹	NX5822-76 W/MSK208 MEMORY	NX5822-77 W/MSK412 MEMORY	PM3-CPU	Processor Module Card Complement (Min. Qty.1)
			MSK412-MEM	MSUK, 4 CHIPSET, 12 REQUESTER, 0 MB (Min. Qty.4)
NX582277-278	NX5822-77	NX5822-78	PM3-CPU	Processor Module Card Complement (Min. Qty.1)

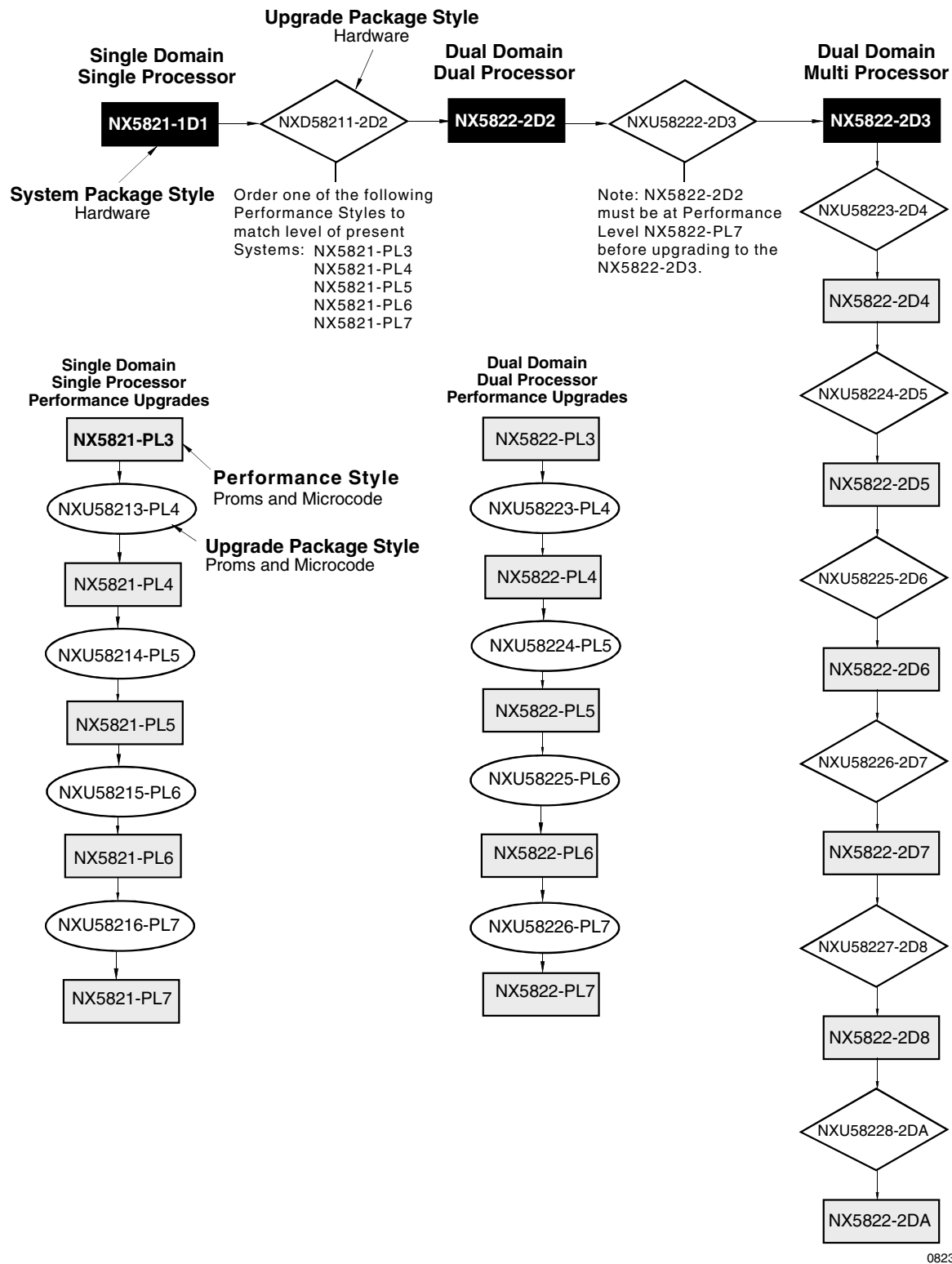
Notes:

1. This style includes four MSK412-MEM boards. This provides for replacement of the basic four MSK208-384 provided in the original NX5822-76 system. Memory DIMMs should be transferred from the existing MSK208 boards to the new MSK208 boards to the new MSK412 boards. If there are more than four MSK412-384 boards present, additional MSK412-384 boards must be ordered to replace all MSK208-384 boards. (All memory in the system must be the same type.)

NX5820 K System Upgrades

Figure 2–11 shows the upgrade paths for the NX5820 K product models listed in Table 2–14. Table 2–14 lists all the NX5820 K System upgrade options. Table 2–15 through Table 2–19 list the components included within the upgrade package styles.

NX5820 K System Upgrades



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Figure 2-11. NX5820 K Upgrade Diagram

Table 2–14. NX5820 K Upgrade Options Summary

Upgrade Type	Converts		Package Style
	From	To	
Performance Upgrades for Single-Domain, Single-Processor Model Systems	NX5821-PL3	NX5821-PL4	NXU58213-PL4
	NX5821-PL4	NX5821-PL5	NXU58214-PL5
	NX5821-PL5	NX5821-PL6	NXU58215-PL6
	NX5821-PL6	NX5821-PL7	NXU58216-PL7
Single-Domain, Single-Processor to Dual-Domain, Dual-Processor Upgrade	NX5821-1D1	NX5822-2D2	NXD58211-2D2
Performance Upgrades for Dual-Domain, Dual-Processor Systems	NX5822-PL3	NX5822-PL4	NXU58223-PL4
	NX5822-PL4	NX5822-PL5	NXU58224-PL5
	NX5822-PL5	NX5822-PL6	NXU58225-PL6
	NX5822-PL6	NX5822-PL7	NXU58226-PL7
Dual-Domain, Dual-Processor to Dual-Domain, Multi-Processor Upgrade	NX5822-2D2	NX5822-2D3	NXU58222-2D3
Dual-Domain, Multi-Processor Upgrades	NX5822-2D3	NX5822-2D4	NXU58223-2D4
	NX5822-2D4	NX5822-2D5	NXU58224-2D5
	NX5822-2D5	NX5822-2D6	NXU58225-2D6
	NX5822-2D6	NX5822-2D7	NXU58226-2D7
	NX5822-2D7	NX5822-2D8	NXU58227-2D8
	NX5822-2D8	NX5822-2DA	NXU58228-2DA

Table 2–15. Performance Upgrades for Single-Domain, Single-Processor Systems

Package Style	Component Style	Component Style Description	Qty.
NXU58213-PL4	NX5821-PL4	FUNCTIONAL SW/STYLE PROM 41 LEVEL	1
NXU58214-PL5	NX5821-PL5	FUNCTIONAL SW/STYLE PROM 51 LEVEL	1
NXU58215-PL6	NX5821-PL6	FUNCTIONAL SW/STYLE PROM 61 LEVEL	1
NXU58216-PL7	NX5821-PL7	FUNCTIONAL SW/STYLE PROM 71 LEVEL	1

NX5820 K System Upgrades

Table 2–16. NX5820 K Single-Domain, Single-Processor to Dual Domain, Dual-Processor Upgrade (SDSP to DDDP)

Component Style	Description	Qty.
Package Style NXD58211–2D2		
Order one of the following performance level style to match existing domain:		1
NX5821-PL3 with NX58231-PRK or	FUNCTIONAL S/W, PERFORMANCE LEVEL 31K, W/PROM STYLE	
NX5821-PL4 with NX58241-PRK or	FUNCTIONAL S/W, PERFORMANCE LEVEL 41K, W/PROM STYLE	
NX5821-PL5 with NX58251-PRK or	FUNCTIONAL S/W, PERFORMANCE LEVEL 51K, W/PROM STYLE	
NX5821-PL6 with NX58261-PRK or	FUNCTIONAL S/W, PERFORMANCE LEVEL 61K, W/PROM STYLE	
NX5821-PL7 with NX58271-PRK	FUNCTIONAL S/W, PERFORMANCE LEVEL 71K, W/PROM STYLE	
Components required for above package style		
ADP131-1T3	3 FT SCSI-1 to SCSI-3 CBL	4
CA322-SCI	SCSI-2W CHANNEL ADAPTER	2
CA600-OMC	CA600 OPERATIONAL MICROCODE	1
CA626-BAS	CTRL:HIG PERFORMANCE 802.3 BASE	1
DSH600004-TBT	ETHERNET CABLE, 4 METER	2
DSH600007-TBT	ETHERNET CABLE, 7 METERS	1
MSA104-192	MSUA BOARD, 1 CHIPSET, 4 REQUESTER, W/192-MB	1
NX5800-DDA	SYSTEM CONSOLE, DUAL DOMAIN ADAPTER	1
NX580232-CMP	DOMAIN '1' COMPONENTS	1
NX5820-CMA	NX5820 CABLE MANAGER, ADDITIONAL	1
NX5820-PSB	BASIC POWER SUPPLY COMPLEMENT	1
NX5822-CCK	DOM1 CARD COMPL, CIOM (1 CIOM, 1 KIUB)	1
PM3-CPU	PROCESSOR MODULE CARD COMPLEMENT	1
RM2-AP2	APC II 2U RM-MODULE	2
VX4000-XCR	TRANSCEIVER, AUI/10BASET	4

Table 2–17. NX5820 K Performance Upgrades for Dual Domain, Dual-Processor Systems

Package Style	Component Style	Component Style Description	Qty.
NXU58223-PL4	NX5822-PL4	FUNCTIONAL SW/STYLE PROM PL4 LEVEL	1
NXU58224-PL5	NX5822-PL5	FUNCTIONAL SW/STYLE PROM PL5 LEVEL	1
NXU58225-PL6	NX5822-PL6	FUNCTIONAL SW/STYLE PROM PL6 LEVEL	1
NXU58226-PL7	NX5822-PL7	FUNCTIONAL SW/STYLE PROM PL7 LEVEL	1

Table 2–18. NX5820 K Dual Domain, Dual-Processor To Dual Domain, Multi-Processor Upgrade (DDDP to DDMP)

Component Style	Description	Qty.
Package Style NXU58222–2D3^{1,2,3}		
PM3-CPU	PROCESSOR MODULE CARD COMPLEMENT	1
MSK208-384	MSUK, 8 REQ, 384-MB	1
MSK208-MEM	MSUK, 8 REQ, 0-MB	1
NX5823-PL7	FUNCTIONAL SW/STYLE PROM, 73 LEVEL	1
NX58273-PRK	PROM LEVEL 73K	1

Notes:

1. The system being upgraded must be at Performance level NX5822-PL7 before installation of this upgrade style.
2. This style is used for upgrading a NX5822-72 which contain MSK104-192 boards to a NX5822-73. DIMMS must be transferred from both of the MSA104-192 boards to the MSK208-MEM board.
3. If the present system (NX5822-72) contains additional MSA104-192 boards (more than two) they must be replaced with MSK208-384 boards. Order style MEM208384-ADD at one each per MSA104-192 being replaced.

NX5820 K System Upgrades

Table 2–19. NX5820 K Dual Domain, Dual-Processor Multi-Processor Upgrades (DDMP)

Component Style	Description	Qty.
Package Style NXU58223–2D4		
PM3-CPU	PROCESSOR MODULE CARD COMPLEMENT	1
NX5824-PL7	FUNCTIONAL SW/STYLE PROM, 74 LEVEL	1
NX58274-PRK	PROM LEVEL 74K	1
Package Style NXU58224–2D5		
PM3-CPU	PROCESSOR MODULE CARD COMPLEMENT	1
NX5825-PL7	FUNCTIONAL SW/STYLE PROM, 75 LEVEL	1
NX58275-PRK	PROM LEVEL 75K	1
Package Style NXU58225–2D6¹		
PM3-CPU	PROCESSOR MODULE CARD COMPLEMENT	1
PS3300-3V	PWR SUP (3U) 360 VOLTS DC TO 3.3 DC	2
MSK208-384	MSUK BD, 8 REQUESTERS, 384-MB	2
NX5826-PL7	FUNCTIONAL SW/STYLE PROM, 76 LEVEL	1
NX58276-PRK	PROM LEVEL 76K	1
Package Style NXU58226–2D7^{2,3}		
PM3-CPU	PROCESSOR MODULE CARD COMPLEMENT	1
MSK412-MEM	MSUK, 4 CHIPSET, 12 REQUESTER, 0 MB	4
NX5827-PL7	FUNCTIONAL SW/STYLE PROM, 77 LEVEL	1
NX58277-PRK	PROM LEVEL 77K	1
Package Style NXU58227–2D8		
PM3-CPU	PROCESSOR MODULE CARD COMPLEMENT	1
NX5828-PL7	FUNCTIONAL SW/STYLE PROM, 78 LEVEL	1
NX58278-PRK	PROM LEVEL 78K	1
Package Style NXU58228–2DA		
PM3-CPU	PROCESSOR MODULE CARD COMPLEMENT	1
NX58210-PL7	FUNCTIONAL SW/STYLE PROM, 710 LEVEL	1
NX582710-PRK	PROM LEVEL 710K	1

Notes:

1. This style is used to grade a NX5822-75 which contains 2 MSK208-384 boards to a NX5822-76.
2. This style includes 4, MSK412-MEM boards. This provides for replacement of the basic 2, MSK208-384 and the 2 MSK208-768 boards in the original NX5822-76 system. Memory DIMMS should be transferred from the existing MSK208 boards to the new MSK412 boards.
3. If there are more than 4, MSK208-384 boards present, additional MSK412-384 boards must be ordered to replace all MSK208-384 boards. (All memory in the system must be the same type.) Order style MSK412-MEM at one each per additional MSK208-384. Transfer DIMMs for the MSK208-384 board(s) to the MSK412-MEM board(s).

Section 3

Configuring System Options

How This Section Is Organized

This section discusses how system options are configured. It covers:

- Memory for the NX5820 and NX5820 K
 - Describes memory components used in expanding memory
 - Provides guidelines for configuring memory
- Channel expansion
- Redundant SCP
- Redundant switching hubs
- Additional operator/maintenance displays
- Operator work space
- Redundant power for NX5820 and NX5820 K
- Configuring additional OSS7000 device
- Configuring from NX5820 to NX5820 K systems

NX5820 and NX5820 K Memory

The NX5820 and NX5820 K utilizes the MSA and two styles of MSK memory boards for various system configurations. Each style of memory is unique to a range of system styles as follows:

- The MSA104-192 board is configured in NX5820 system styles NX5821-31 through NX5822-72, and in NX5820 K system styles NX5821-1D1 and NX5822-2D2.
- The MSK208-384 board is configured in NX5820 system styles NX5822-73 through NX5822-76, and in NX5820 K system styles NX5822-2D3 through NX5822-2D6.
- The MSK412-384 board is configured in NX5820 system styles NX5822-77 and NX5822-78, and in NX5820 K system styles NX5822-2D7 through NX5822-2DA.

Table 3-1 shows the specific type and quantity of memory boards configured.

NX5820 and NX5820 K Memory

Table 3–1. Basic Memory Board Configuration By System Style

System Style	Memory Style	Basic Quantity	Maximum Quantity
NX5820 SYSTEMS			
NX5821-31 through -71 & NX5822-32 through -72	MSA104-192	One per domain	Three per domain
NX5822-73 through -75	MSK208-384	One per domain	Three per domain
NX5822-76	MSK208-384	Two per domain	Three per domain
NX5822-77 and -78	MSK412-384	Two per domain	Three per domain
NX5820 K SYSTEMS			
NX5821-1D1 and NX5822-2D2	MSA104-192	One per domain	Three per domain
NX5822-2D3 through NX5822-2D5	MSK208-384	One per domain	Three per domain
NS5822-2D6	MSK208-384	Two per domain	Three per domain
NX5822-2D7 through NX5822-2DA	MSK412-384	Two per domain	Three per domain

Each basic memory style board can be upgraded on a quadrant basis through the addition of DIMM sets. Refer to Table 3-2 for a description and comparison of the memory styles and upgrade components.

Table 3–2. NX5820 and NX5820 K Memory Styles and Upgrade Components

Style	Description
MSA104 Style Memory	
MSA104-192	Provides a four requestor MSA memory board with one chip set (two DRAMs) for a memory capacity of 192 megabytes of storage. Up to two additional boards, each orderable under style MSA104-192, can be configured per domain.
MOD192-DM2	Provides one chip set (two DRAMs) for upgrading the memory capacity of the basic MSA104-192 style memory board to 384 megabytes.

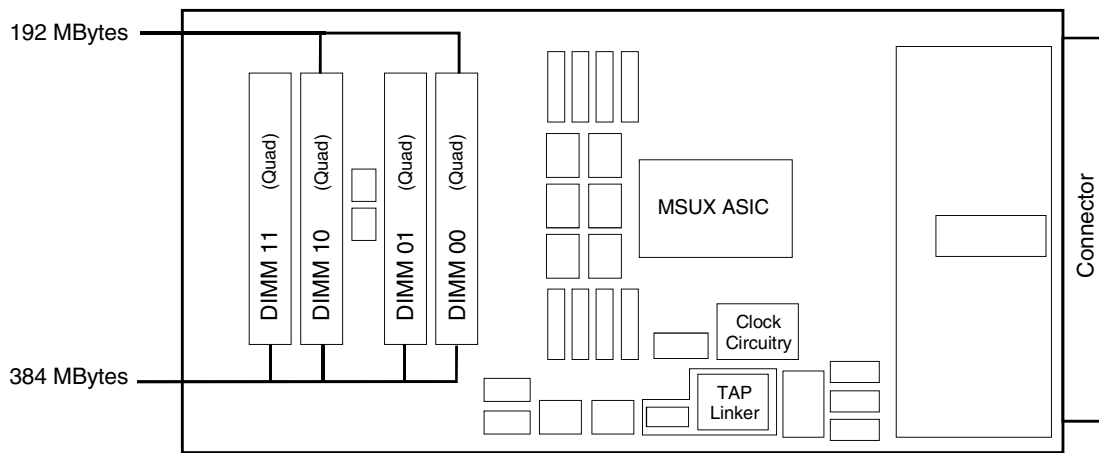
Table 3–2. NX5820 and NX5820 K Memory Styles and Upgrade Components (cont.)

Style	Description
MSK208 Style Memory	
MSK208-384	Provides a basic eight requestor MSK memory board with two chip sets (four DRAMs) for a memory capacity of 384 megabytes of storage. Up to three boards, each orderable under style MEM298384-ADD, can be configured per domain.
MEM298384-ADD	Provides one additional MSK208-384 memory board, plus an additional 3.3 V DC Power Supply.
MOD384-DM2	Provides two chip sets (four DRAMs) for upgrading the memory capacity of the basic MSK208-384 style memory board to 768 megabytes.
MSK412 Style Memory	
MSK412-384	Provides a basic twelve requestor MSK memory board with attached mezzanine board and two chip sets (four DRAMs) for a memory capacity of 384 megabytes of storage. Up to three boards, each orderable under style MEM412384-ADD, can be configured per domain.
MEM412384-ADD	Provides one additional MSK412-384 memory board, plus an additional 3.3 V DC Power Supply.
MOD384-DM2	Provides two chip sets (four DRAMs) for upgrading the memory capacity of the basic MSK412-384 style memory board to 1536 megabytes in increments of 384 megabytes.

MSA104 Style Memory

The minimum memory capacity per domain utilizing the MSA style memory board is 192 megabytes. Memory capacity may be expanded to 1152 megabytes per domain in increments of 192 megabytes by adding up to two additional MSA104-192 boards and an additional MOD192-DM2 per memory board. MSA memory modules are 6U high cards.

Figure 3-1 depicts the board layout showing the location of the major components of the MSA memory board. Since memory increments are in bank and segment order, the basic 192 megabyte board will have two DIMMs (00 AND 10) installed. A DIMM is comprised of sixteen 16M X 4 BIT DRAMS and provides for 96 MB of memory. Memory capacity for the board is expanded to 384 MB by adding two additional DIMMS, 01 AND 11.



MSA Memory Increments			Bank 0		Bank 1	
Quads	Storage		Seg 0	Seg 1	Seg 0	Seg 1
	Mwords	MBytes				
2	32	192	16Mx64 Full Quad		16Mx64 Full Quad	
4	64	384	16Mx64 Full Quad	16Mx64 Full Quad	16Mx64 Full Quad	16Mx64 Full Quad
DIMM No.			00	01	10	11

0091

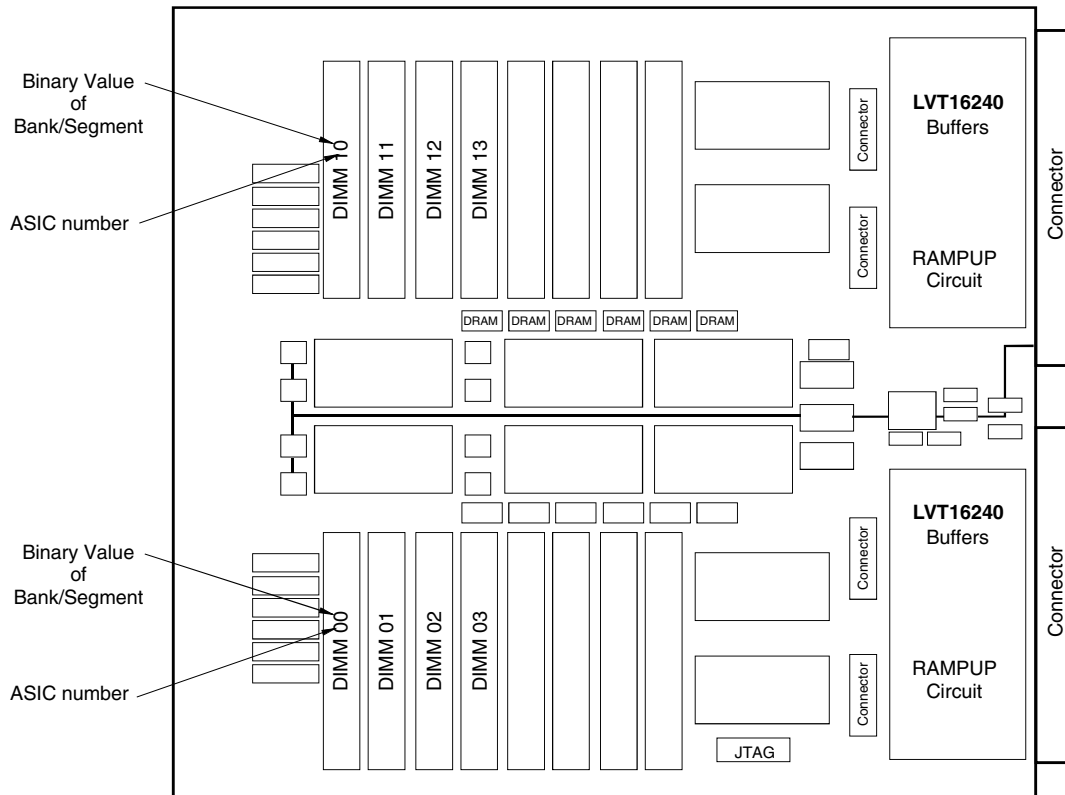
Figure 3-1. MSA Board Layout

MSK208 Style Memory

The minimum memory capacity per domain utilizing the MSK208 memory board is 384 megabytes. Memory capacity may be expanded to 2304 megabytes per domain in increments of 384 megabytes by adding up to two additional MSK208 memory boards and by adding two chip sets (four DIMMs) per memory board.

Figure 3–2 depicts the board layout showing the location of the major components of the MSK208 memory board. Since memory increments are in bank and segment order, further defined by the Server ASIC, the basic 384 MB board will have four DIMMS (00, 02, 10, 12) installed. A DIMM is comprised of sixteen 16M X4 BIT DRAMS and provides for 96 MB of memory. Memory capacity for the board is expanded to 768 MB by adding four additional DIMMS (01, 03, 11, 13).

MSK208 Style Memory



MSK208 Memory Increments Storage			MSUX ASIC Number							
			0				1			
			Bank 0		Bank 1		Bank 0		Bank 1	
Quads	Mwords	MBytes	Seg 0	Seg 1	Seg 0	Seg 1	Seg 0	Seg 1	Seg 0	Seg 1
1	64	384	16Mx64 1/4 Quad		16Mx64 1/4 Quad		16Mx64 1/4 Quad		16Mx64 1/4 Quad	
2	128	768	16Mx64 1/4Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad
DIMM No.			00	01	02	03	10	11	12	13

0087

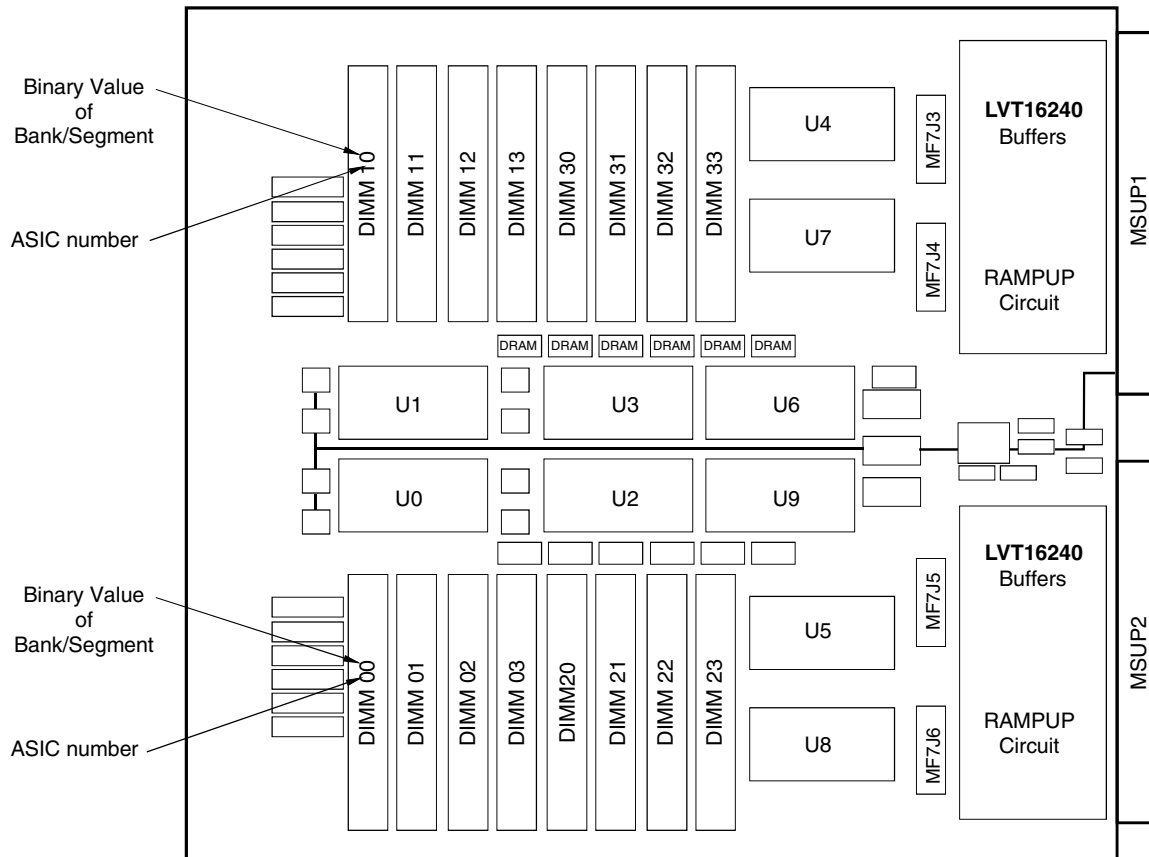
Figure 3–2. MSK208 Board Layout

MSK412 Style Memory

The minimum memory capacity per domain utilizing the MSK412 memory board is 384 megabytes. Memory capacity may be expanded to 4608 megabytes per domain in increments of 384 megabytes by adding up to two additional MSK412 memory boards and by adding six chip sets (twelve DIMMs) per memory board.

Figure 3-3 depicts the board layout showing the location of the major components of the MSK412 memory board. Since memory increments are in bank and segment order, further defined by the Server ASIC, the basic 384 MB board will have four DIMMS (00, 10, 20, 30) installed. A DIMM is comprised of sixteen 16M X4 BIT DRAMS and provides for 96 MB of memory. Memory capacity for the board is expanded to 1536 megabytes by adding twelve additional DIMMS: (01,11, 21, 31); (02,12, 22, 32); and (03, 13, 23, 33).

MSK412 Style Memory



MSK412 Memory Increments			MSUX ASIC Number															
			0				1				2				3			
			Bank 0		Bank 1		Bank 0		Bank 1		Bank 0		Bank 1		Bank 0		Bank 1	
Memory Incr 64 Meg Word Quads	Storage Mwords MBytes	Seg 0	Seg 1	Seg 0	Seg 1	Seg 0	Seg 1	Seg 0	Seg 1	Seg 0	Seg 1	Seg 0	Seg 1	Seg 0	Seg 1	Seg 0	Seg 1	
1	64 384	16Mx64 1/4 Quad				16Mx64 1/4 Quad				16Mx64 1/4 Quad				16Mx64 1/4 Quad				
2	128 768	16Mx64 1/4 Quad		16Mx64 1/4 Quad		16Mx64 1/4 Quad		16Mx64 1/4 Quad		16Mx64 1/4 Quad		16Mx64 1/4 Quad		16Mx64 1/4 Quad		16Mx64 1/4 Quad		
3	192 1152	16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad		16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad		16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad		16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad		
4	256 1536	16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad	16Mx64 1/4 Quad	
DIMM No.		00	02	01	03	10	12	11	13	20	22	21	23	30	32	31	33	

0087A

Figure 3-3. MSK412 Board Layout

Memory Slot Locations

A maximum of three MSA, MSK208 or MSK412 memory cards per domain can be configured. The maximum system capacity is 9216 megabytes using MSK412 memory cards. The memory card slot locations are listed in Table 3-3.

Table 3-3. Memory Card Slot Locations

NX5820 and NX5820 K			
DOMAIN 0		DOMAIN 1	
MSA Style Memory			
MSA-0	SLOT A0P1	MSA-0	SLOT B0P1
MSA-1	SLOT A1P1	MSA-1	SLOT B1P1
MSA-2	SLOT A2P1	MSA-2	SLOT B2P1
MSK Style Memory			
MSK-0	SLOT A0P1P2	MSK-0	SLOT B0P1P2
MSK-1	SLOT A1P1P2	MSK-1	SLOT B1P1P2
MSK-2	SLOT A1P1P2	MSK-1	SLOT B1P1P2

IOM Channel Expansion

See Section 5 for details on IOM options and guidelines for configuring these options.

Configuring Redundant SCP for the NX5820 and NX5820 K

The redundant SCP option enhances system redundancy and resiliency by providing a backup SCP capability to assume the system console role if the primary SCP becomes inoperable. It is only available on dual domain models.

See Table 3–4 for optional redundant system console package style and it's associated component styles. This style provides redundant SCP capability only on dual domain systems.

Table 3–4. Redundant System Console Package Styles

Component Style	Description	For NX5820 and NX5820 K Package Style RNX5820-SCP
		Quantity
ADP68501-FTF	68F/50F SCSI ADAPTER	2
CBL12-APX	CABLE ASSY, 12 FEET APEX SWITCH	1
CDR1740-SI	17-40X SCSI CD-ROM	1
DIM10072-128	PC100 SDRAM 128MB	1
DR20001-OK1	OK KIT	1
DR200081-Z	DUAL RACK, AC PWR	1
DSR2500-512	500 MHz, W/512K	1
EVG2100-P	15" CLR MON HIGH-END	1
HDL917-W	9-GB P-WIDE SCSI	1
OS1000-CUS	O/S: CUSTOMER SET-UP	1
PCK1-EXT	CABLE, M TO F PS2	2
PCK104-SKB	KEYBOARD	1
PCT1200-INT	1.2 GB QIC TAPE	1
PWM1-PS2	MOUSE, PS2	1
SCP5820-RCM	NX5820 REDUNDANT COMMON MATERIAL	1
SVG100-EXT	M TO F SVGA EXT CBL	1
USE1936-LC8	POWER "Y" CABLE, 250 VAC, 10 AMP	1
UXW2-DRV	SCO DRIVER	1
UXW21-PED	SCO UW PERS	1
UW6021-SDK	SCO DEV. KIT	1
VX1300-FAS	FASCIA, SERVER VX1300 (DR/2)	1
VX4008-SWT	8 PORT MON/KEYBD/MOUSE SWITCH	1
VX1820-CPS	ClearPath SERVER APPLICATION	1

Configuring Redundant Switching Hubs

Redundant switching hubs enhance system redundancy and resiliency by providing a backup capability to the primary public switching hub.

- Package style for the NX5820 redundant public switching hub is NX5000-RDT which includes the following items:

<i>Component Style Name</i>	<i>Description</i>	<i>Quantity</i>
<i>VX5000-SWH</i>	<i>Switching hub (Bay Networks)</i>	<i>1</i>
<i>CBL24-1</i>	<i>Ethernet 10Base-T (B to B) cable assembly, 1 meter</i>	<i>1</i>

- Order above redundant public switching hub options as necessary. The maximum number is unlimited.

Configuring Additional Displays

The following considerations apply when configuring additional displays:

- One monitor with keyboard and mouse is provided with the primary SCP (style NX5820-SCP for NX5820 and NX5820 K systems). This monitor is shared with the servers.
- A second monitor with keyboard and mouse is provided with the redundant SCP option (style RNX5820-SCP for NX5820 and NX5820 K systems).
- Up to six PC-based operator display workstations (ODWs) can be connected to both the internal maintenance hub (private LAN) and the internal switching hub (public LAN) for operator display terminal (ODT) and maintenance use. For instructions to install software products and configurations for the ODW in a Windows NT environment, refer to *ClearPath Enterprise Server NX Series with Windows NT Implementation and Operations Guide* (8807 6542).

Note: *ODWs are a client responsibility. Requirements are listed below.*

Configuring Operator Display Workstations

ODWs are a client responsibility. The following minimum requirements apply:

- 120 Mhz Pentium processor that:
 - Is capable of running Windows NT workstation at 3.51 or higher operating system software
 - Has a copy of SCO XVision (PC1-XV)
 - Has Unisys custom SCP fonts (installed as part of the NX Administration utilities after installing SCO XVision)
- Contains:
 - Minimum 16-MB memory
 - 1-MB video RAM
 - 256-color display (minimum 1024 x 768 resolution)
 - Minimum 1-GB hard disk drive
 - 1.44-MB floppy disk drive
 - CD-ROM drive with tray
 - Ethernet LAN (10BaseT on the ClearPath private LAN)
 - Ethernet LAN (10BaseT for use on the public LAN)

The following software products are among the choices in the market that enable an ODW to remotely administer ClearPath Windows NT environments:

- Windows NT Server resource kit
- MicroSoft BackOffice

Configuration Guidelines for SCP Monitors and ODW Displays

Table 3-5 lists guidelines for configuring monitors with keyboard, mouse, and ODW (ODT/maintenance) displays. Figure 3-4 show examples of typical single ODW arrangement.

Table 3-5. Guidelines for Configuring SCP Monitors and ODW Displays

Configuration	Guideline
Single-Domain/Non-Redundant Dual Domain	One monitor with keyboard and mouse is supplied with the system. It is shared with all other servers (up to 7 servers total) via the eight-way ST selector.
	Up to six ODWs can be connected via the maintenance hub (Private LAN) and the switching hub (Public LAN).
Redundant Dual-Domain	One monitor with keyboard and mouse is supplied with the system. It is shared with the SCP in domain 0 and servers in both domains via the eight-way ST selector.
	One monitor with keyboard and mouse is supplied with the redundant console and servers connected to domain 1. It attaches to the domain 1 eight-way ST selector provided with the redundant console style.
	Either monitor can be used for server windowing when not in use for SCP functions.
	Up to six ODWs with GUI capability can be connected via the maintenance hub (Private LAN) and the switching hub (Public LAN).

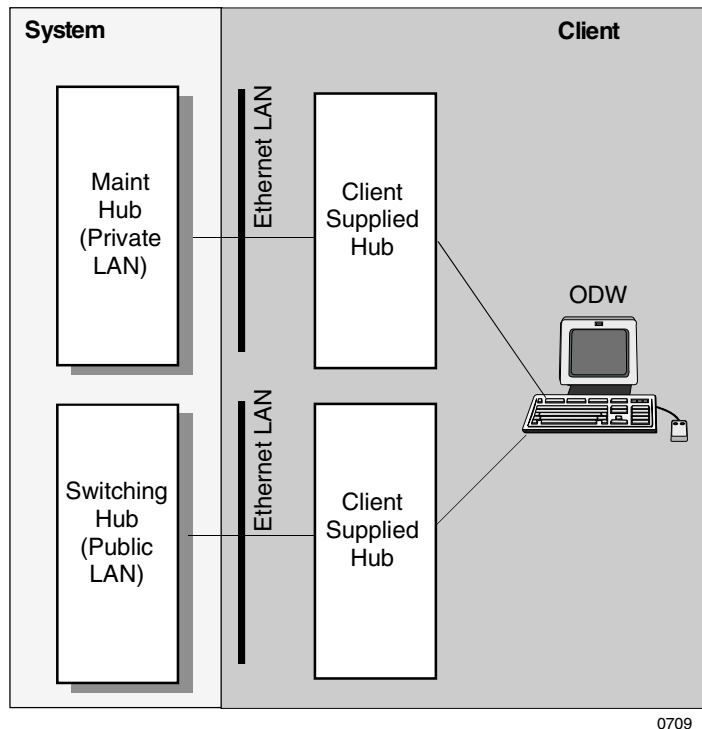


Figure 3-4. Typical Client Supplied Single ODW Arrangement

Work Space

An optional console table is available for operator work space and/or placement of the monitor/keyboard/mouse shared by the SCP, the server, and the ST selector.

- Package style: TAB40-048, Console Table (40 inches by 48 inches by 40 inches high)

Redundant Power for the NX5820 and NX5820 K

- Component Style: NX5800-RPW (NX5820 and NX5820 K redundant power).
- One NX5800-RPW is optional per domain and must be ordered separately.
- Ensures that the power supply remains operational in the event of a single power supply failure. Redundant cooling is already included within the NX5820 and NX5820 K system.
- Includes the following components:

Component Description	Quantity
ac/dc bulk power supply	1
5 volts dc/dc power supply	1
3.3 volts dc/dc power supply	1

See Section 2 (NX5820 Power Layout and Requirement) for redundant power supply layout.

Configuring Additional OSS7000 Devices

Each system comes with a standard OSS7000 subsystem that contains two disks, one CD-ROM, and one QIC tape. This can be expanded as follows:

- Two additional 4-GB disks (Style OSD4111-S20) may be ordered for a maximum of four disks.
- One additional CD-ROM (Style OSD6201-RCD) or QIC tape (Style OSD1001-QTA) may be ordered for a maximum of three devices allowed (two being in the basic system).

Converting From NX5820 to NX5820 K Systems

Table 3–6 lists the package styles that are used when converting single and dual domain NX5820 systems to NX5820 K systems. It also lists the component styles and quantity used in each package style. See *ClearPath Enterprise Server NX5800 Upgrades/NX5820 Migration Installation Guide*, 7016 7143 for conversion instructions.

Converting From NX5820 to NX5820 K Systems

Table 3–6. Conversion Package Styles for NX5820 to NX5820 K Systems

Conversion Package Style	Converts		Consists of Component Style	Qty.
	From	To		
Single Domain Systems				
NXM582131-31K	NX5821-31	NX5821-1D1/PL3 Migration	KIU5820-PCA (KIUB BOARD)	1
			NXM5821-PL3 (Functional SW)	1
			NXM582131-PRK (PROM)	1
			NX5820-OPC (Console S/W)	1
NXM582141-41K	NX5821-41	NX5821-1D1/PL4 Migration	KIU5820-PCA (KIUB BOARD)	1
			NXM5821-PL4 (Functional SW)	1
			NXM582141-PRK (PROM)	1
			NX5820-OPC (Console S/W)	1
NXM582151-51K	NX5821-51	NX5821-1D1/PL5 Migration	KIU5820-PCA (KIUB BOARD)	1
			NXM5821-PL5 (Functional SW)	1
			NXM582151-PRK (PROM)	1
			NX5820-OPC (Console S/W)	1
NXM582161-61K	NX5821-61	NX5821-1D1/PL6 Migration	KIU5820-PCA (KIUB BOARD)	1
			NXM5821-PL6 (Functional SW)	1
			NXM582161-PRK (PROM)	1
			NX5820-OPC (Console S/W)	1
NXM582171-71K	NX5821-71	NX5821-1D1/PL7 Migration	KIU5820-PCA (KIUB BOARD)	1
			NXM5821-PL7 (Functional SW)	1
			NXM582171-PRK (PROM)	1
			NX5820-OPC (Console S/W)	1
Dual Domain Systems				
NXM582232-32K	NX5822-32	NX5822-2D2/PL3 Migration	KIU5820-PCA (KIUB BOARD)	2
			NXM5822-PL3 (Functional SW)	1
			NXM582232-PRK (PROM)	1
			NX5820-OPC (Console S/W)	1
NXM582242-42K	NX5822-42	NX5822-2D2/PL4 Migration	KIU5820-PCA (KIUB BOARD)	2
			NXM5822-PL4 (Functional SW)	1
			NXM582242-PRK (PROM)	1
			NX5820-OPC (Console S/W)	1
NXM582252-52K	NX5822-52	NX5822-2D2/PL5 Migration	KIU5820-PCA (KIUB BOARD)	2
			NXM5822-PL5 (Functional SW)	1
			NXM582252-PRK (PROM)	1
			NX5820-OPC (Console S/W)	1
NXM582262-62K	NX5822-62	NX5822-2D2/PL6 Migration	KIU5820-PCA (KIUB BOARD)	2
			NXM5822-PL6 (Functional SW)	1
			NXM582262-PRK (PROM)	1
			NX5820-OPC (Console S/W)	1

Converting From NX5820 to NX5820 K Systems

Table 3–6. Conversion Package Styles for NX5820 to NX5820 K Systems

Conversion Package Style	Converts		Consists of Component Style	Qty.
	From	To		
NXM582272-72K	NX5822-72	NX5822-2D2/PL7 Migration	KIU5820-PCA (KIUB BOARD)	2
			NXM5822-PL7 (Functional SW)	1
			NXM582272-PRK (PROM)	1
			NX5820-OPC (Console S/W)	1
NXM582273-73K	NX5822-73	NX5822-2D3/PL7 Migration	KIU5820-PCA (KIUB BOARD)	2
			NXM5823-PL7 (Functional SW)	1
			NXM582273-PRK (PROM)	1
			NX5820-OPC (Console S/W)	1
NXM582274-74K	NX5822-74	NX5822-2D4/PL7 Migration	KIU5820-PCA (KIUB BOARD)	2
			NXM5824-PL7 (Functional SW)	1
			NXM582274-PRK (PROM)	1
			NX5820-OPC (Console S/W)	1
NXM582275-75K	NX5822-75	NX5822-2D5/PL7 Migration	KIU5820-PCA (KIUB BOARD)	2
			NXM5825-PL7 (Functional SW)	1
			NXM582275-PRK (PROM)	1
			NX5820-OPC (Console S/W)	1
NXM582276-76K	NX5822-76	NX5822-2D6/PL7 Migration	KIU5820-PCA (KIUB BOARD)	2
			NXM5826-PL7 (Functional SW)	1
			NXM582276-PRK (PROM)	1
			NX5820-OPC (Console S/W)	1
NXM582277-77K	NX5822-77	NX5822-2D7/PL7 Migration	KIU5820-PCA (KIUB BOARD)	2
			NXM5827-PL7 (Functional SW)	1
			NXM582277-PRK (PROM)	1
			NX5820-OPC (Console S/W)	1
NXM582278-78K	NX5822-78	NX5822-2D8/PL7 Migration	KIU5820-PCA (KIUB BOARD)	2
			NXM5828-PL7 (Functional SW)	1
			NXM582278-PRK (PROM)	1
			NX5820-OPC (Console S/W)	1

Section 4

Configuring I/O Cabinets and Channel Racks

How to Use This Section

This section provides guidelines for configuring universal cabinet (UC) style rack-mount (RM) cabinets:

- "Configuring I/O Cabinets" describes cabinet components and provides guidelines for configuring the cabinets.
- "Configuring Channel Racks" describes channel rack components and provides guidelines for configuring channel racks.

For information on configuring migration I/O cabinets and bases, refer to the documentation for systems from which these units are being migrated.

For information on configuring I/O devices, refer to the appropriate sections of the *A Series and ClearPath Enterprise Server NX Systems I/O Hardware Configuration Guide* (7008 6087).

Configuring I/O Cabinets

The following open-front (no doors) styles of RM cabinets can be ordered with the system:

- BRM36-O and BRM36-O2

The following louvered door styles of RM cabinets can be migrated to the system:

- RM36-1 and RM36-2

Table 4–1 describes the cabinet styles. Table 4–2 provides guidelines for configuring the cabinets.

Table 4–1. Cabinet Styles

Status	Style	Description
Orderable	BRM36-0	First or only open-front style cabinet in a row. 36U high.
	BRM36-02	Second and additional open-front style cabinets in a row. 36U high.
Migration	RM36-1	First or only louvered-door style cabinet in a row. 36U high.
	RM36-2	Second and additional louvered-door style cabinets in a row. 36U high.

Table 4–2. Configuration Guidelines for I/O Cabinets

Rule	Description
1	Optional cabinets higher than 19U require a cable manager.
2	<p>The following UIO style I/O bases can be migrated to the system. Refer to the documentation for the system from which the units are being migrated for configuration information.</p> <p>General guidelines are as follows:</p> <ul style="list-style-type: none"> • RM9-I01 - First I/O base in cabinet. Without fascia. • RM9-I02 - Second and subsequent I/O bases in cabinet. Without fascia. • RM9-I03 - Can be migrated with the installation of upgrade style RM934-CNV. With fascia. • RM9-I04 - First I/O base in style cabinet. With fascia. • RM9-I05 - Second and subsequent I/O bases in cabinet. With fascia. <p>Maximum capacities are as follows:</p> <ul style="list-style-type: none"> • I/O bases per UC36 cabinet = 4 maximum • I/O bases per UC19 cabinet = 2 maximum • Cards per I/O base = 18 maximum

Configuring Channel Racks

Channel racks expand IOM connectivity beyond the channel slots provided in the system cabinet. Two styles of channel rack are available:

- RM5-CA4 - With fascia for open-door style cabinets
- RM5-CA5 - Without fascia, for louvered-door style cabinets

Each channel rack connection requires:

- CSB3-E3U – CSBUS3 External CMF W/3U Feedthru
or
- CSB3-E6U – CSBUS3 External CMF W/6U Feedthru

WARNING

When connecting external channel racks to a CS-bus III interface, check to ensure that only CS-bus III style components are used, that is, CSB3-3U or CSB3-6U feedthrough card and CSB3-XXC cable. Mixing CS-bus II and CS-bus III interface component styles on external channel rack interfaces will result in damage to the equipment.

Table 4–3 describes channel rack components. Table 4–4 provides configuration guidelines. Table 4–5 provides guidelines for configuring the power net in channel racks. For guidelines on configuring the channels themselves and when to use external channel racks, refer to "Configuring Channels" in Section 5.

Configuring Channel Racks

Table 4–3. Channel Rack Components

Style	Description
RM5-CA4 and RM5-CA5	<ul style="list-style-type: none"> • These are modular channel racks used with RM-style open-front I/O cabinets to house external channel cards. • RM5-CA4 is with fascia, for BRM36-0 and BRM36-02 cabinets. • RM5-CA5 is without fascia, for BRM36-1 and BRM36-2 cabinets with louvered doors only. • Each rack contains four bays with four 3U slots each and accommodates up to sixteen 3U channel cards. • A conversion kit is available for converting adjacent 3U slots for 6U use • Each CS bus interface requires an optional CMF interface card and CS-bus cable (see below)
CSB3-E3U	Consists of: <ul style="list-style-type: none"> • One CSB35000-3U CS BUS3 Feedthru/Term 3U • One CSB3-20C Cable Assembly, CSBIII 20 feet
CSB3-E6U	Consists of: <ul style="list-style-type: none"> • One CSB35000-6U CS BUS3 Feedthru/Term 6U • One CSB3-20C Cable Assembly, CSBIII 20 feet • Four RM5-6UF 6U Slot Filler, Channel Rack
CSB35000-3U CMF Interface	<ul style="list-style-type: none"> • Provided with CSB3-E3U for a 3U CS-bus III path from the IOM to an external channel rack. • Each option includes a 3U feedthrough/terminator card for the external channel rack. See preceding warning.
CSB35000-6U CMF Interface	<ul style="list-style-type: none"> • Provided with CSB3-E6U options for a 6U CS-bus III path from the IOM to an external channel rack. • Each option includes a 6U feedthrough/terminator card for the external channel rack. • The options also include RM5-6UF covers (below) for unused 6U slots. See preceding warning.
CSB3-20C CS-Bus III Interface Cable	Included with CSB3-E3U and CSB3-E6U options to provide the channel path from the internal CS-bus to an external channel rack. (20 feet) See preceding warning.
RM5-6UF	6U blank board included with CSB3-E6U option. Required for unused 6U slots.
CHN1-6T3	Channel Rack 6U to 3U board converter. It is used to accommodate an unused 6U board slot to a 3U board slot. Allows a 3U channel card to be placed in an unused 6U slot.

Table 4–4. Guidelines for Configuring Channel Racks

Area	Rule/Recommendation												
3U configurations	<p>Consists of four bays with four 3U channel slots each:</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr><td style="width: 50%; height: 15px;"></td><td style="width: 50%; height: 15px;"></td></tr> <tr><td style="width: 50%; height: 15px;"></td><td style="width: 50%; height: 15px;"></td></tr> <tr><td style="width: 50%; text-align: center;">3U Bay (3rd)</td><td style="width: 50%; text-align: center;">3U Bay (4th)</td></tr> <tr><td style="width: 50%; height: 15px;"></td><td style="width: 50%; height: 15px;"></td></tr> <tr><td style="width: 50%; text-align: center;">3U Bay (1st)</td><td style="width: 50%; text-align: center;">3U Bay (2nd)</td></tr> <tr><td style="width: 50%; height: 15px;"></td><td style="width: 50%; height: 15px;"></td></tr> </table> <p style="text-align: right; margin-right: 20px;"><small>A22</small></p> <p>Vertically adjacent bays can be electrically and logically configured so that one CS-bus can service two bays with up to eight channels. The following configurations are possible:</p> <ul style="list-style-type: none"> • Four CS-buses servicing four bays of four channels each • One CS-bus servicing eight channels in vertically adjacent bays and two CS-buses servicing two bays of four channels each • Two CS-buses servicing two sets of vertically adjacent bays of eight channels each <p>See Table 5–3 for channel loading.</p>					3U Bay (3rd)	3U Bay (4th)			3U Bay (1st)	3U Bay (2nd)		
3U Bay (3rd)	3U Bay (4th)												
3U Bay (1st)	3U Bay (2nd)												
Mixed 3U/6U configurations	<p>Consists of adjacent 3U bays converted to 6U use:</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr><td style="width: 50%; height: 15px;"></td><td style="width: 50%; height: 15px;"></td></tr> <tr><td style="width: 50%; height: 15px;"></td><td style="width: 50%; height: 15px;"></td></tr> <tr><td style="width: 50%; text-align: center;">3U Bay (2nd)</td><td style="width: 50%; text-align: center;">3U Bay (3rd)</td></tr> <tr><td colspan="2" style="text-align: center; height: 15px;">6U Bay (1st)</td></tr> <tr><td colspan="2" style="text-align: center; height: 15px;"></td></tr> </table> <p style="text-align: right; margin-right: 20px;"><small>A23</small></p> <p>In the configuration shown, two 3U paths service the two upper bays and one 6U path services the lower bay. The 3U-to-6U conversion can be in either the upper or lower bays, or both. The following configurations are possible:</p> <ul style="list-style-type: none"> • Two CS-buses servicing two bays of four 3U channels each and one CS-bus servicing one converted bay of four 6U channels • Two CS-buses servicing two bays of four 6U channels each <p>See Table 5–3 for channel loading.</p>					3U Bay (2nd)	3U Bay (3rd)	6U Bay (1st)					
3U Bay (2nd)	3U Bay (3rd)												
6U Bay (1st)													
Channel loading	<p>Each CS-bus can handle up to eight channel loads. The above configurations may be limited to fewer channels than indicated, depending on the channel loading. See "Assigning Channel Loads" in Section 5.</p>												
Filler boards	<p>Unused 6U locations must contain a filler board. The RM5-6UF option provides one 6U filler board for this purpose and included with CSB3-E6U option.</p>												

Configuring Channel Racks

Table 4-5. Configuring Power Net in Channel Racks

Area	Recommendation
Configuration	<p>For NX5820 systems, if the channel racks are daisy chained to one another and the CEC section, use 9 Pin D to 9 Pin D Power Net cables (Style CBL8820-xxx, cable assembly 3446 6110-xxx).</p> <p>The 9 Pin "Power Net In" connector (J5) is located on the left side in the rear of the channel rack. The 9 Pin "Power Net Out" connector (J4) is next to it.</p>
Power Net Address	Switches 3 (MSB) through 8 (LSB) are used for the Power Net address assigned to the channel rack. Switch 1 and 2 are not applicable.
Termination	Channel racks have internal termination. Only install Power Net terminator activation jumpers at JP2 and JP4 if this channel rack is the last on the Power Net chain.
Reference	Refer to <i>Channel Rack Installation Guide</i> (3953 3893-502) or higher for further information on channel racks.

Section 5

Configuring the Input/Output Module

Introduction

This section explains how to configure the I/O module (IOM) and its components.

- It covers that portion of the Input/Output system considered part of the central system; that is, from the IOB for the NX5820 or the KIUB for the NX5820 K to the Common Input/Output Module (CIOM) and including the channel interface.
- It **does not** cover from the channel interface outward. That information is included in the *Unisys e-@ction ClearPath Enterprise Servers A Series and NX Systems I/O Configuration Guide (7008 6087)*. See "Information Contained in the I/O Configuration Guide" at the end of this section for a list of topics.

How This Section Is Organized

The following topics are discussed in this section:

- How the IOM is organized
 - IOM Logical organization
 - IOM Physical organization
 - IOM options
- Configuring channels
 - Styles offered
 - Assigning channel loads
 - Configuration guidelines
 - Configuration diagrams
- Where to find I/O subsystem information

How the IOM Is Organized

The IOM manages the I/O channels connected via the channel service (CS) busses and transfers data and control information to and from main storage via the memory interface. Each domain contains an IOM system.

IOM Logical Organization

Each IOM consists of two board types:

- Input/Output Bridge (IOB) for NX5820 or KIUB for NX5820 K which provides connectivity between the system memory and the I/O bus.
- Common Input/Output Module
 - Each CIOM comes with four channel manager facility (CMFs) which provides four CS-bus interfaces, one CS-bus per CMF.
 - In addition, the first CIOM of each domain allows two of it's four CS busses to be directed to the backplane to drive the internal channels. These same two CS-busses can also drive external channels.
 - For NX5820, one CIOM of each domain is dedicated for IOU functionality. No CMFs are available for CS-bus interfaces on this CIOM. Current NX5820 systems will only support four usable CIOMs per domain for CS-bus connectivity.
 - NX5820 K systems will support five usable CIOMs per domain for CS-bus connectivity. Optionally, one CIOM in domain 0 is dedicated for Multi IOU functionally, and one CIOM in domain 1 is dedicated for TCU functionally. These two CIOMs can not support CS-bus connectivity.

Figure 5–1 shows the over view of the IOM organization for the NX5820. Figure 5–2 shows the over view of the IOM organization for the NX5820 K.

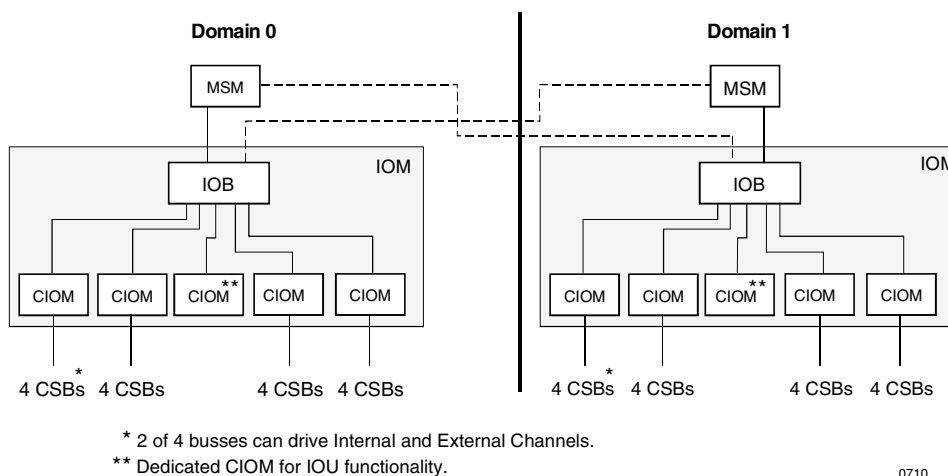
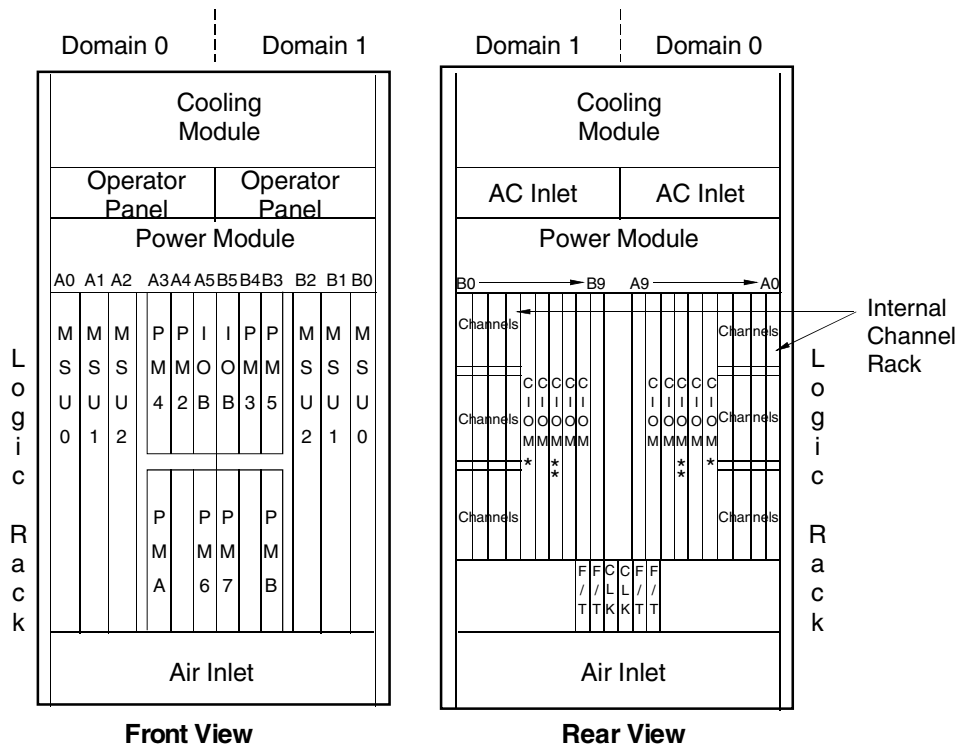


Figure 5–1. NX5820 IOM Organization

How the IOM Is Organized

First CIOM Per Domain		
CMF#	Used for channels	Channel Loads
CMF0	External	CMF0 and CMF4 are combined for 16 loads
CMF4	Internal	
CMF1	External	CMF1 and CMF5 are combined for 16 loads
CMF5	Internal	
CMF2	External	16 loads
CMF3	External	16 loads

- With optional CS Bus connectivity CIOMs installed (Style CIM9-ADD), an additional four CS busses are available per CIOM (CMF0, 1, 2, 3), all being external CS busses with 16 channel loads each.

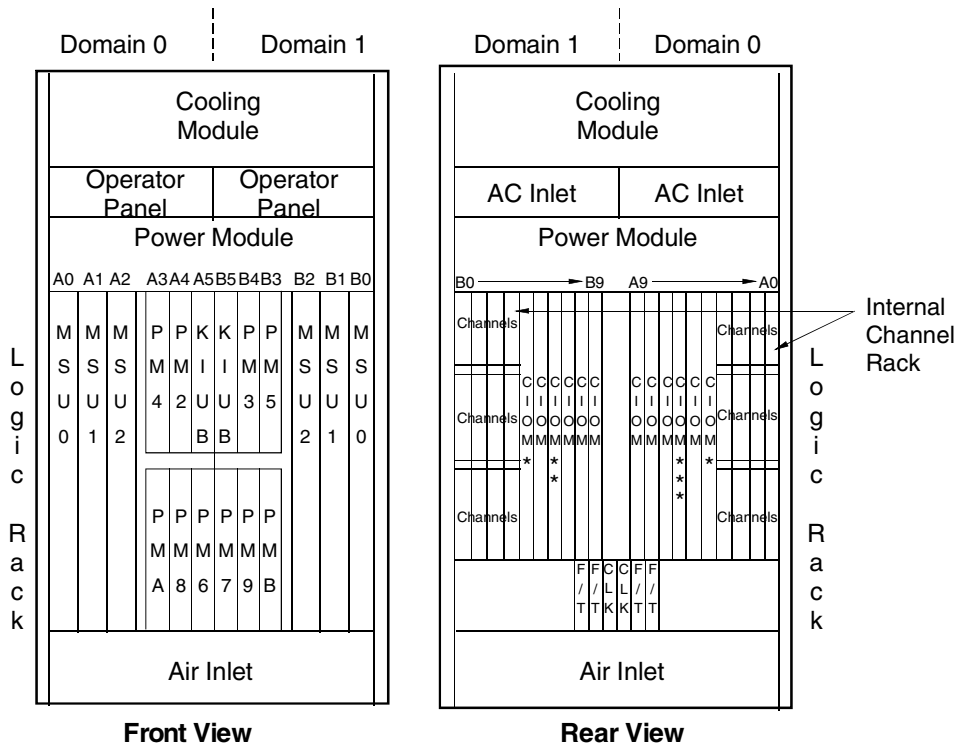


* The first CIOM board in the domain goes into this slot.

* Required CIOM Board for IOU functionality (CMF CS busses can not be used).

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Figure 5-3. Card Module Assembly for NX5820



- * The first CIOM board in the domain goes into this slot.
- ** Optionally dedicated for TCU functionality
- *** Optionally dedicated for Multi-IOU functionality

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Figure 5-4. Card Module Assembly for NX5820 K

IOM Options

- CMF external connectivity options
- CIOM upgrade

CMF External Connectivity

Table 5-1 lists the corresponding package styles required for connection of an external CS-bus to an external channel rack (RM5-CA4 or RM5-CA5) and includes the appropriate Feedthru board (3U or 6U Feedthru depending on the style below). Order one package style for each CMF to be connected to external channel rack(s). When migrating channels from older systems, order appropriated CSB3-E3U or CSB3-E6U kits to provide CSBus 3 type cables and interface cards.

How the IOM Is Organized

Table 5–1. CMF External Connectivity Options

Package Style Name	Component Style Name	Qty.	Description/Content
CSB3–E3U			CS Bus 3 External CMF with 3U Feedthru.
	CSB35000–3U	1	CS Bus 3 Feedthru/Terminator card, 3U.
	CSB3–20C	1	Cable assembly, CSB 3, 20 feet.
CSB3–E6U			CS Bus 3 External CMF with 6U Feedthru.
	CSB35000–6U	1	CS Bus 3 Feedthru/Terminator card, 6U.
	RM5–6UF	4	6U Slot filler, channel rack.
	CSB3–20C	1	Cable assembly, CSB 3, 20 feet.

CIOM Upgrade

For NX5820, four CIOMs (two per domain) are included with each system configured. For NX5820 K, two CIOMs (one per domain) are included with each system configured. For NX5820, up to a maximum of six (three per domain) additional CIOMs are allowed per system. For NX5820 K, up to a maximum of ten (five per domain) additional CIOMs are allowed per system. For additional CIOMs, order package style CIM9-ADD. It includes the following:

- One IOM9-CRD CIOM PC Assembly
- One NX5820-CMA Additional Cable Manager

Configuring Channels

This subsection:

- Identifies channel adapter styles supported on the system
- Provides channel loading for supported styles
- Provides guidelines for configuring channels
- Provides typical channel configuration diagrams

Styles Offered

Table 5–2 identifies the channel adapter styles supported on the system. Channel adapters listed as "new" can be purchased with the system. Channel adapters listed as "migration" can be migrated from existing systems. Channel adapters listed as "planned" are to be qualified in the future.

Table 5–2. Supported Channel Adapter Types

Style	Description	Support Status
CA301-MLI	MLI channel	New
CA312-SCI	SCSI-2N channel	Migration
CA322-SCI	SCSI-2W channel	New
CA332-SCI	SCSI-Ultra Wide Channel	New
CA601-FDI	FDDI channel	Migration
CA602-FDI	FDDI channel	Migrated
CA604-FDI	CDDI channel	TBD
CA622-BAS	Entry-level 802.3 channel	Migration
CA626-BAS	High performance 802.3 channel	New
CA6552-OC3	ATM channel	Migration
CA65516-OC3	ATM channel	New
CA6552	ATM channel	New
FCA621-CU	Fibre channel (Copper)	Planned
FCA622-SW	Fibre channel (Short)	New
FCA623-LW	Fibre channel (Long)	New
MAINTLAN	Part of NX5821-CCC or NX5822-CCC	New
PCI3-FTH	PCI thru bridge card	New

Assigning Channel Loads

Table 5–3 provides CS-bus loading guidelines for the various channel configurations. CS-bus loading is dependent on bus demand factor (BDF), which provides a gauge of CS-bus availability when the channel requires service. When there are many channels on the CS-bus vying for service simultaneously, there is a low probability of any one of the channels being granted instantaneous access to the bus. Such a configuration would offer greater connectivity, but the BDF would be low. Conversely, if the channel requires immediate access to the bus, the BDF would be high. Such a configuration would offer greater performance.

In Table 5–3, note that BDF increases as the bus demand increases such that at maximum performance, connectivity is of secondary importance; conversely, at maximum connectivity, performance is of secondary importance. The balanced performance/connectivity column reflects loading where performance and connectivity receive approximately equal consideration.

Note: *To achieve results representative of the performance and connectivity profiles in the tables, it is recommended that bus loading be limited to sixteen loads per bus for CIOM CS-Busses.*

Table 5–3. CIOM CS-Bus Channel Loading

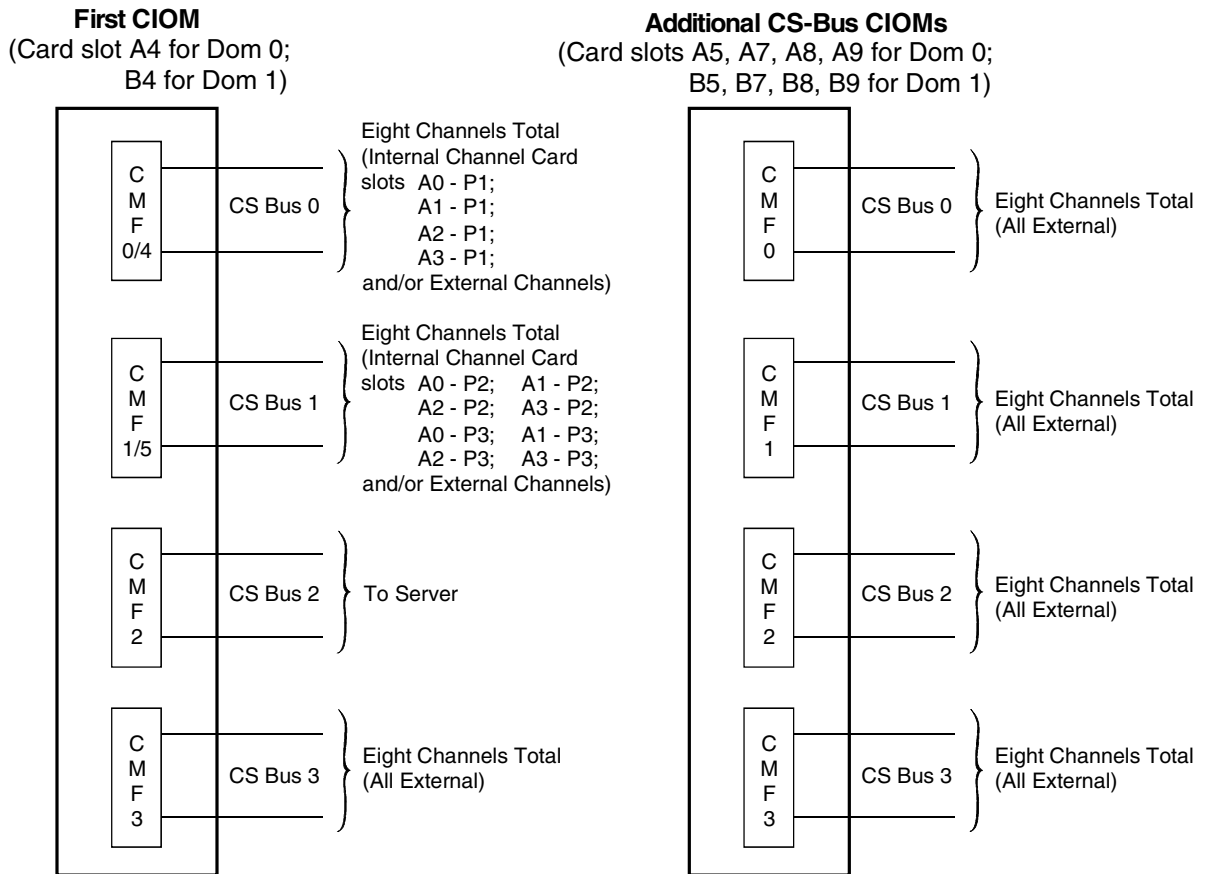
Channel Type	Bus Demand Factor ¹		
	Maximum Performance	Balanced Performance/Connectivity	Maximum Connectivity
802.3 (two ports)	3 loads	1 load	1 load
ATM (full duplex) ²	8 loads	4 loads	2 loads
FDDI/CDDI	5 loads	1 load	1 load
Fibre	8 loads	4 loads	4 loads
MAINTLAN	1 load	1 load	1 load
MLI	6 loads	2 loads	1 load
PCI thru	10 loads	4 loads	2 loads
SCSI-2N	8 loads	2 loads	1 load
SCSI-2W	10 loads	3 loads	2 loads
SCSI-ULTRA	12 loads	3 loads	2 loads

Notes:

1. BDF = Equivalent loads per channel.
2. Refer to ATM Channel Adapter Style CA6552–OC3 Configuration Guide in the About This Guide section for loading applicable to specific configurations.

Configuration Guidelines

Figure 5–5 is a CIOM/CMF/CS-Bus and channel diagram. Table 5–4 provides guidelines for configuring channels.



Note: For NX5820 Max Channels: 4 X CIOM/Domain (8 CIOMs)
254 Logical Channels per system

Note: For NX5820 K Max Channels: 5 X CIOM/Domain (10 CIOMs)
254 Logical Channels per system

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Figure 5–5. CIOM/CMF/CS-BUS and Channel Diagram

Table 5–4. Guidelines for Configuring Channels

Rule	Description
Number of CMFs per CIOM	<p>Standard: 4 CMFs per CIOM (CMF 0, 1, 2, 3 per CIOM)</p> <p>Maximum: Up to a maximum of 16 external CMFs per domain (32 CMFs per system) for NX5820.</p> <p>Up to a maximum of 20 external CMFs per domain (40 CMFs per system)for NX5820 K.</p>
CS-bus interfaces	<p>A minimum of four CS-bus interfaces per CIOM are provided. When using up to 4 CIOMs with CS-bus connectivity, there are a maximum of 16 CS buses per domain for NX5820. When using up to 5 CIOMs with CS-bus connectivity, there are a maximum of 20 CS buses per domain for NX5820 K.</p> <p>For all models, one additional CS-bus interface is required for each server attached to the system. As an option, servers can be connected via the PCI thru card. Refer to optional configurations in this section.</p> <p>For the first CIOM in each domain, two of the four standard CMF/CS-bus interfaces (CMF0/4 and CMF1/5) can service channels in the internal channel rack located within the module assembly, plus additional external channels (up to 8 channels maximum per CS-bus).</p> <p>CS-bus interfaces can be connected to an external channel rack via optional package styles listed in Table 5–1.</p> <p>Each CS-Bus interface can service up to sixteen channel loads; however, see “<i>Assigning Channel Loads</i>” earlier in this section. Channel loads should be balanced across CMFs, CS-busses, and domains.</p>

Table 5-4. Guidelines for Configuring Channels

Rule	Description
Channels	<p>Total Channels for NX5820 System:</p> <p>A total of 254 logical channels are available per system.</p> <p>For Domain 0, 130 physical channel connections are available (15 external CMFs x 8 = 120 channels plus 10 internal channels. One CMF use for dedicated server. Of the 10 internal channels, 4 are required for reserved channels, leaving 6 available for internal channels).</p> <p>For Domain 1, 138 physical channel connections are available (16 external CMFs x 8 = 128 channels plus 10 internal channels. No dedicated server. Of the 10 internal channels; 4 are required for reserved channels, leaving 6 available for internal channels).</p> <p>Up to two (one per domain) CIOM are required for IOU functionality.</p> <p>Total Channels for NX5820 K System:</p> <p>A total of 254 logical channels are available per system.</p> <p>For Domain 0, 162 physical channel connections are available (19 external CMFs x 8 = 152 channels plus 10 internal channels. One CMF use for dedicated server. Of the 10 internal channels, 4 are required for reserved channels, leaving 6 available for internal channels).</p> <p>For Domain 1, 170 physical channel connections are available (20 external CMFs x 8 = 160 channels plus 10 internal channels. No dedicated server. Of the 10 internal channels; 4 are required for reserved channels, leaving 6 available for internal channels).</p> <p>Optionally, one CIOM in domain 0 is dedicated for Multi IOU functionality and one CIOM in domain 1 is dedicated for TCU functionality. These two optional CIOMs can not support CS-bus connectivity.</p> <p>Reserved channels per domain:</p> <p>One SCSI-2W channel (two channel loads) (3U) dual initiated for the QIC tape and CD-ROM in the OSS7000.</p> <p>One SCSI-2W channel (two channel loads) (3U) dual initiated for two hard drives in the OSS7000.</p> <p>One MAINTLAN channel (one load) (6U) for the Maintenance Hub.</p> <p>One 802.3 high performance channel (one load) (6U) for the public LAN (Switching Hub).</p>
Considerations	<p>The following considerations apply when configuring channels:</p> <p>Each SCSI, MLI, and PCI thru channel card occupies one 3U card slot.</p> <p>Each 802.3 LAN and MAINTLAN channel card occupy two 3U card slots (6U high)</p> <p>Each FDDI, CDDI, ATM, and Fibre channel card occupy four 3U card slots (2 X 6U high).</p> <p>Each additional 6U high channel card reduces the number of slots available for 3U channel accordingly.</p>

Configuration Diagrams

Figure 5-6 and Figure 5-7 are examples of typical channel configurations. Actual configurations may vary depending on the number and types of channels configured. Figure 5-8 shows the typical locations of the PCI thru card when used optionally to connect a server via the internal channel rack or remote channel rack. The following rules apply:

- Reserved channels occupy preassigned channel card slots; however, the locations assigned to the channels in these examples are typical. The actual card slots occupied by the MAINTLAN, 802.3, and SCSI-2W cards may vary with the system.
- All configurations are subject to channel loading considerations; that is, channel loading is restricted to sixteen channel loads per CMF.

Table 5-5 list the various channel assignments and configurations.

Table 5-5. NX5820 Channel Assignments and Configurations

Name/Use	Description
CS-4, CS-5	The internal bus from CMFn to the corresponding row of channel card slots in the internal rack.
CS-0, CS-1, CS-2, CS-3	The external bus from CMFn to an external channel or server's PCI bridge (Windows NT only)
A0 to A9 or B0 to B9	Module card slot locations.
P1, P2, P3	Module card row number.
R1 to R8	The requestor channel number associated with the corresponding card slot in the internal channel rack. If a channel card occupies more than one card slot, the requestor channel number assumes the lowest logical number of the card slots occupied.
MAINTLAN	Each domain requires a MAINTLAN channel for access to the Maintenance Hub for private use. The channel was arbitrarily assigned to card slot A0 (P2 & P3) or B0 (P2 & P3) for NX5820.
CA322-SCI	Each domain requires two dual-initiated SCSI-2W channels. One channel services the QIC tape and CD-ROM located in the OSS7000 rack. The second channel serviced two disks also located in the OSS7000 rack. The channels were arbitrarily assigned to card slots A3 (P3) and B2 (P3) or B3 (P3) and A2 (P3).
CA626-BAS	Each domain requires an 802.3 channel card for access to an 802.3 Ethernet Public LAN and is available for client use. The channel was arbitrarily assigned to card slots A1 (P2 & P3) or B1 (P2 & P3)
PCI3-FTH	Optional connection of a server via PCI thru bridge card. See Figure 5-8 for optional configurations of the PCI thru card. PCI3-FTH is shipped from the factory to be used with relative address 3 in channel racks.

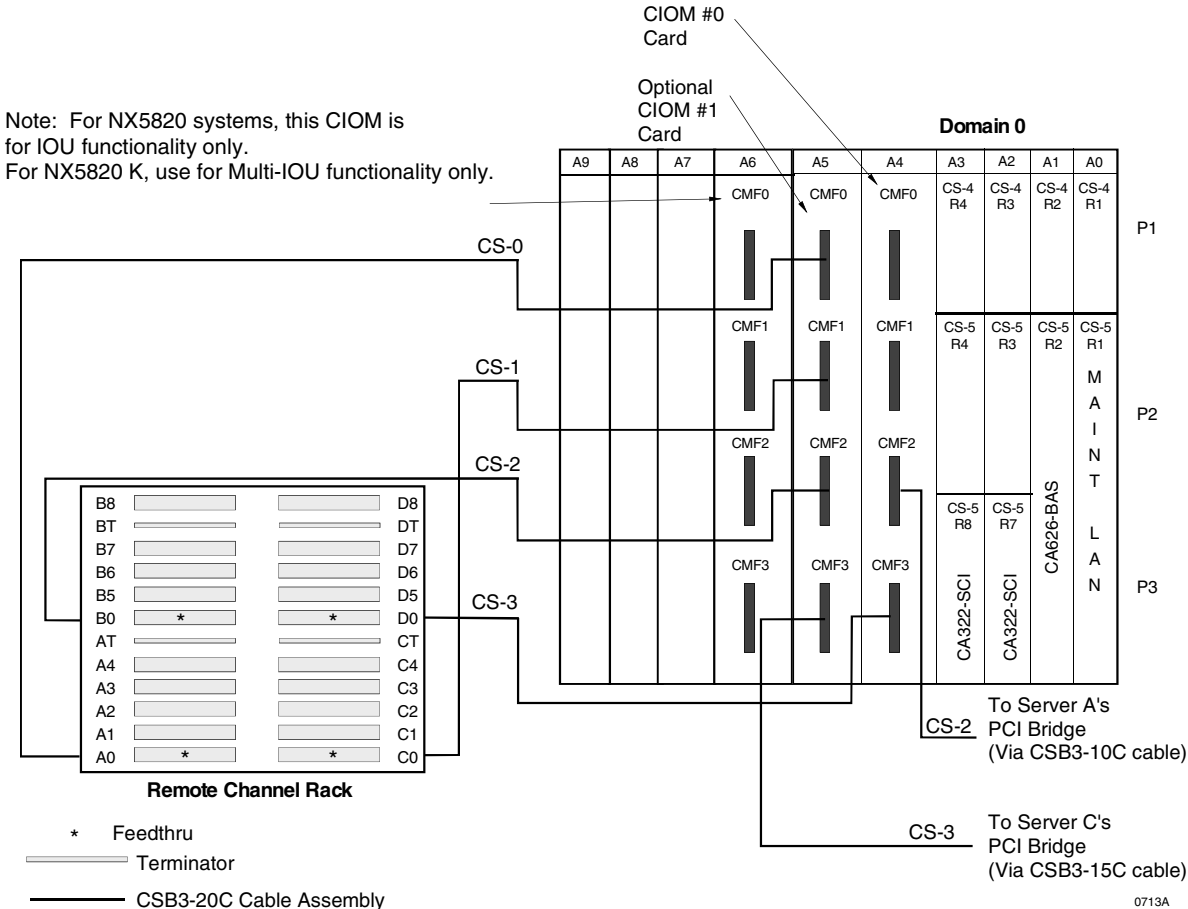


Figure 5-6. Single Domain Typical Channel Configuration (Two Internal CS Busses, Two Servers, Four External 4-Channel Buses)

Configuring Channels

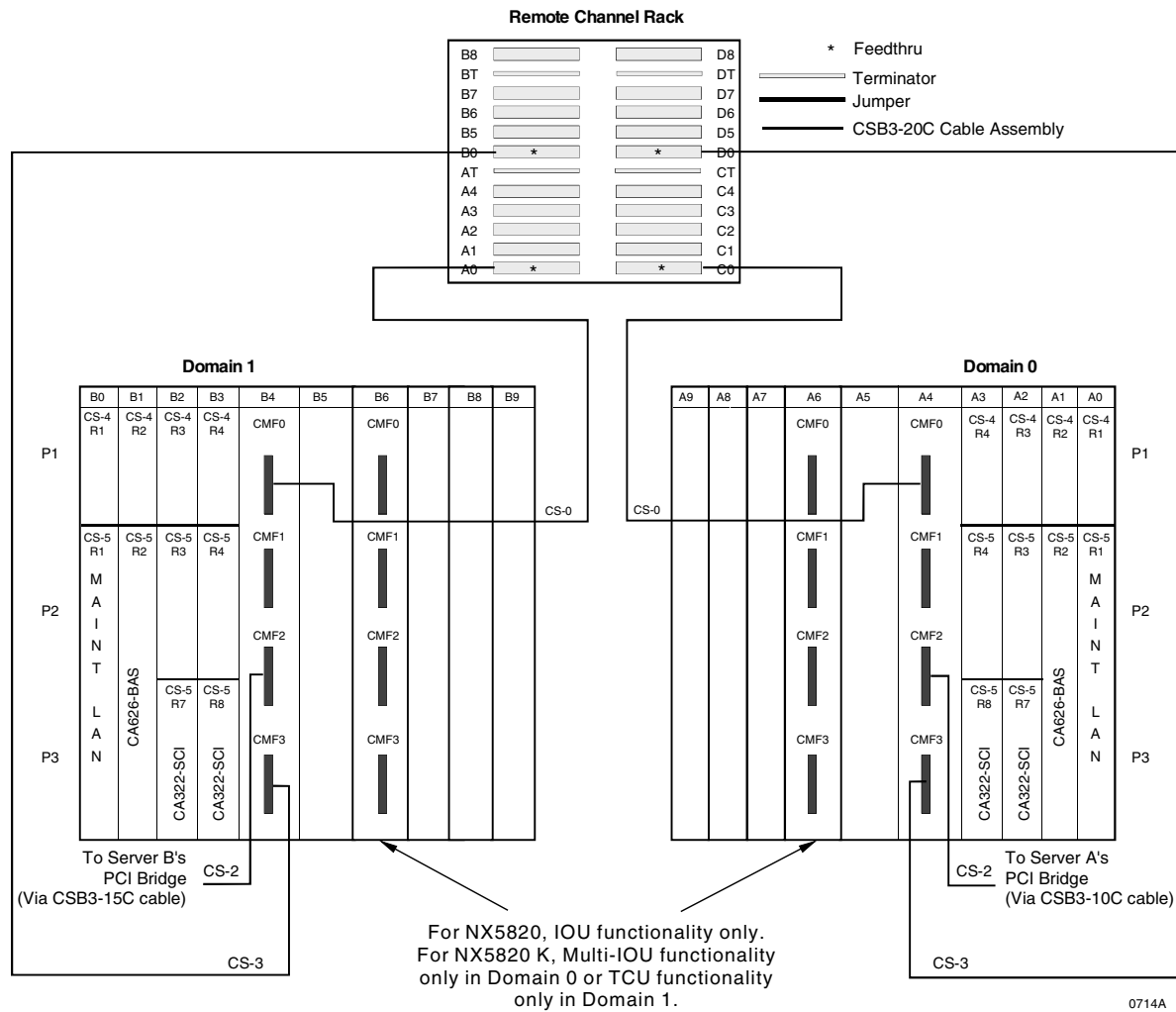
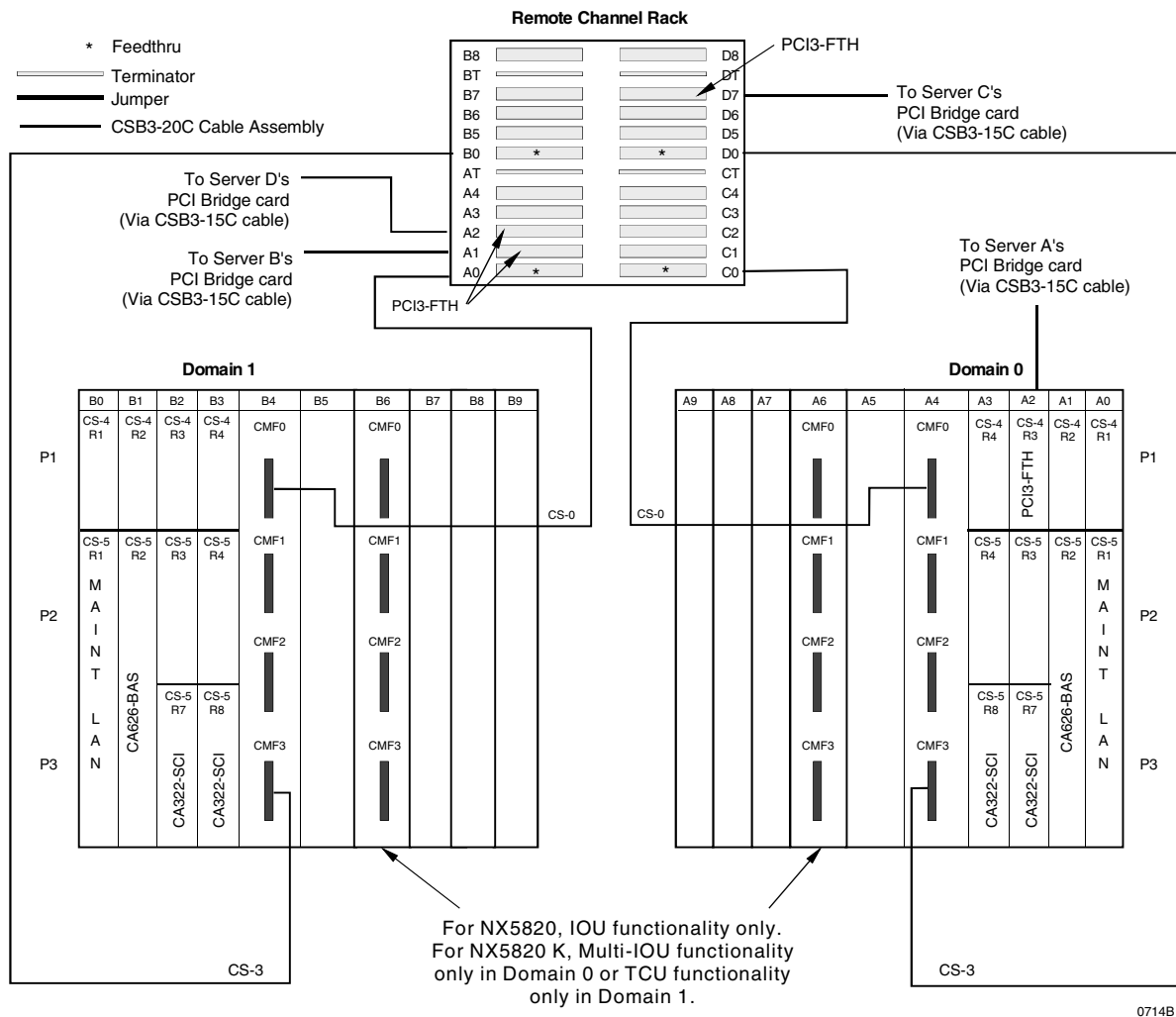


Figure 5-7. Dual Domain Typical Channel Configuration (One Internal CS Buss, Two Servers, and One External 8-Channel Buss per Domain)

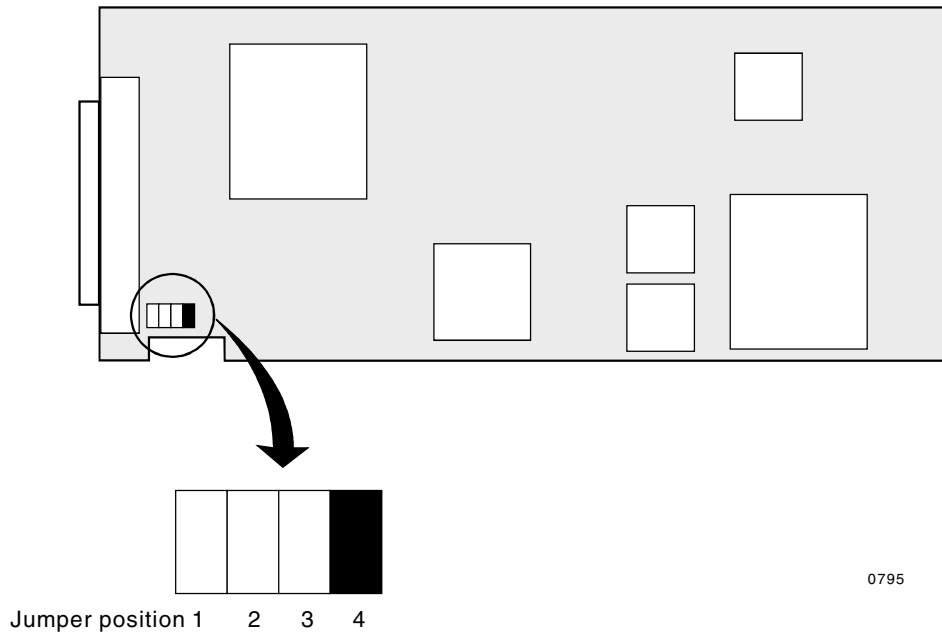
PCITHRU Feature Card

The PCITHRU card (style PCI3-FTH) permits expanded use of a server connected CSBus by allowing the server to be connected to a channel rack slot (internal or external), thus enabling connection of additional channels to the same CSBus. See Figure 5–8 for a representative example. Note the PCITHRU card in the internal CS-4/R3 slot used is to connect Server A to Domain 0. Slot three is depicted since the default jumper position on the PCI Bridge Boards shipped from the factory is jumper position 4 which corresponds to a relative channel slot position of three. Slots 1 and 2 can be used, but require a change to the jumper position on the PCI Bridge card, see Figure 5–9. Also note in Figure 5–8 that Server B and Server D are connected to CS-3 in Domain 1 via PCITHRU cards installed in slots A1 and A2 of the Remote Channel Rack.



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Figure 5–8. Dual Domain Typical PCITHRU Card Location in the Internal and External Channel Racks



PCITHRU Channel Slot No.	PCI Bridge Jumper Position
1	2
2	3
3 ¹	4 ¹

¹ Default jumper position

Figure 5–9. PCITHRU Slot Versus PCI Bridge Jumper Positions

Configuring QIC Tape and CD-ROM

Standard system models include both quarter-inch cartridge (QIC) tape and CD-ROM. Refer to the *Unisys e-@ction ClearPath Enterprise Servers A Series and NX Systems I/O Configuration Guide (7008 6087)* for guidelines on configuring these devices.

Information Contained in the NX Systems I/O Configuration Guide

Use the *Unisys e-@ction ClearPath Enterprise Servers A Series and NX Systems I/O Configuration Guide (7008 6087)* for information relative to the I/O subsystem from the channel interface outward. The topics covered in that guide are outlined below.

- I/O Cabinets and bases:
 - Independent I/O (IIO) cabinets
 - I/O bases

Note: I/O Cabinets and racks available with the NX Systems are covered in Section 4 of this guide.
- Standard I/O subsystems supported on the system:
 - Small computer system interface (SCSI) subsystem channels SCSI-2W and SCSI-2N
 - Direct-attach subsystem/channels
 - o Fiber and copper distributed data interface (FDDI/CDDI) local area networks (LANs)
 - o 802.3 LANs
 - o Message level interface (MLI) channel
 - o Asynchronous transfer mode (ATM) network
- Migration I/O subsystems supported on the system:
 - MLI-based SCSI
 - Data communications subsystems using data link processors (DLPs)
 - o Network support processor (NSP)
 - o Line support processor (LSP)
 - o EDC DLP
 - o Integrated communications processor (ICP)
 - o CP2000 communications processor
 - Communications processor local area network (CPLAN)

- Peripheral devices supported on the system:
 - Comprehensive listing of device styles
 - Migration/new qualification status
 - Channel types
 - PCD control names
 - PCD/MCP names
- Peripheral configuration and power control addressing:
 - Peripheral configuration diagram (PCD)
 - Power control net (PCN)
 - Automatic power control (APC)
- Cables

Section 6

Configuring the Servers

How This Section Is Organized

This section contains the following information:

- Describes the features provided with
 - VX1305-BSE/-BSU servers
 - VX1505-BSE/ -BSU servers
 - ES2024R servers (Package Style ESR202141-GZN)
 - ES5044R servers (Package Style ESR504141-GZN)
 - ES5085R servers (Package Style ESR508151-GZN)
- Identifies components included with each server
- Identifies required and optional package styles
- Lists configuration guidelines
- Configuring the private maintenance Hub and Public Switch LAN
- Provides information on configuring the optional uninterruptible power supply (UPS)

VX1305 Servers

Note: This configuration guide lists the basic features and options offered with VX1305 servers. The VX1305 server supports Windows NT. Your Unisys representative can provide details on server options available beyond those documented here.

VX1305 Basic Features

- One to ten servers (Five maximum per domain)
 - VX1305-BSE (server A: server position 1)
 - VX1305-BSU (server B, C, D, E, F, G, H, I, or J: server positions 2, 3, 4, 5, 6, 7, 8, 9, or 10)
- One to two processors per server
- One memory card per server
 - Initial memory size is 256 MB per server
 - Up to three (3) additional 256 MB memory styles can be installed in the server.
- PCI/ISA architecture
 - One ISA
 - Six PCI
 - One shared ISA/PCI card slot
- Dedicated peripheral devices, per server:
 - Two hot-swappable 3.5-inch RAID disks and RAID controller with 4 MB cache memory. One additional disk is optional.
 - Three drive RAID cage
 - One CD-ROM drive
 - One 1.44 MB 3.5-inch diskette drive
- Redundant hot-swap power supplies with dual AC inlets
- Redundant hot-swap cooling fans
- Connection and user access packages depending on client requirements

Table 6–1 lists the standard features provided with the VX1305-BSE/-BSU packages. Additional processors, additional memory, connection packages, and user access components must be ordered separately.

Figure 6–1 provides a road map for ordering VX1305 servers. The remainder of this subsection describes the server contents.

Table 6–1. Basic Features, VX1305 Servers

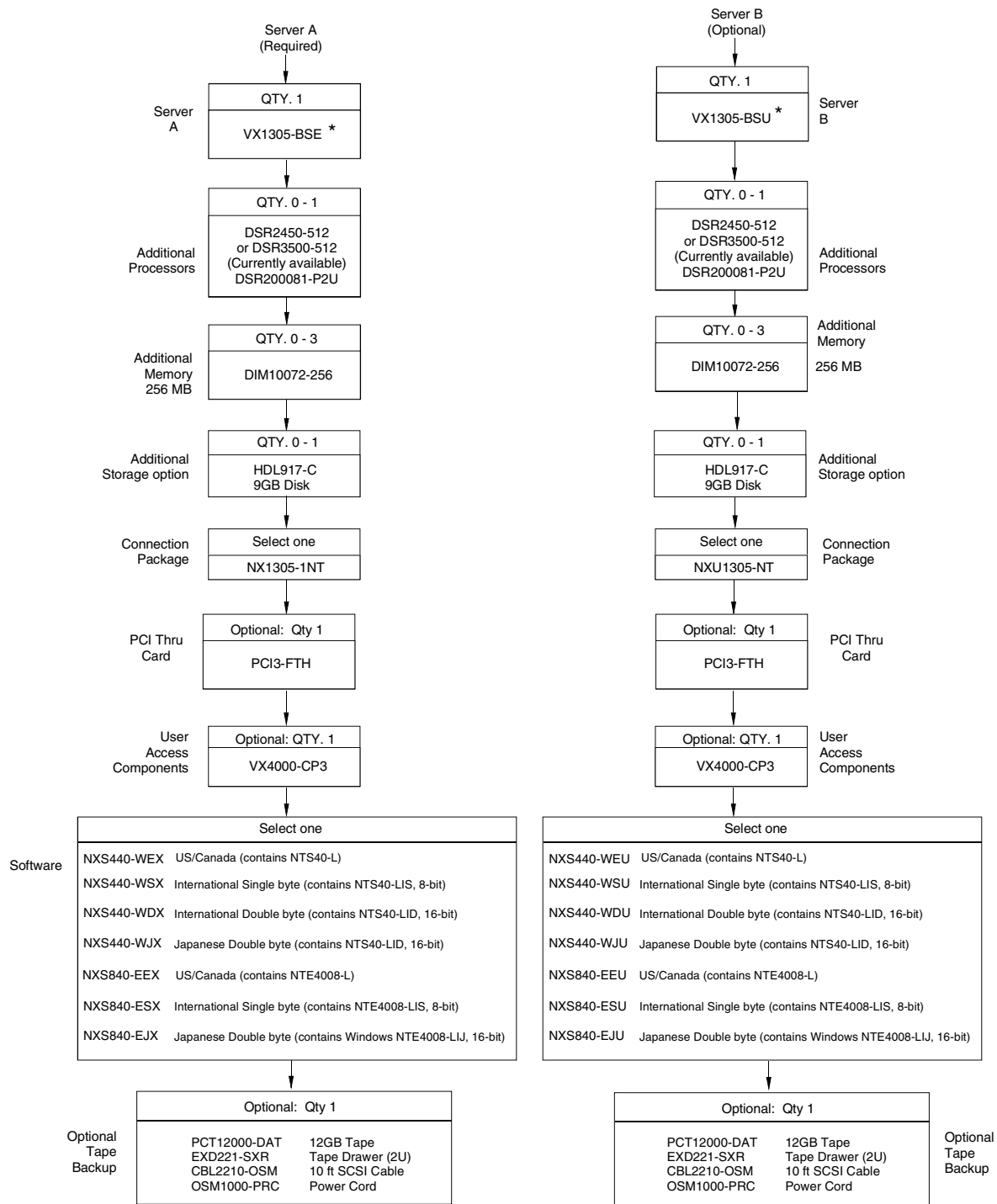
VX1305 Servers	Processors ^{2,3}	Memory ⁴		10/100 Mbps LAN Interface	3.5-Inch 1.44-MB Floppy Disk Drive	CD-ROM Drive	DAT Tape Drive ⁷	RAID 9-GB Hard Disk Drives ⁵	
		Min.	Max.	Std.	Std.	Std.	Std.	Std.	Max.
Per Server ^{1,6,7}	1 to 2	256-MB	1-GB	2	1	1	0	2	3

Notes:

1. VX1305-BSE includes the basic components listed in Table 6–2. VX1305-BSU contains the same basic components.
2. One processor is included with each VX1305-BSE/-BSU package.
3. One additional processor and voltage regulator may be added to each VX1305-BSE/-BSU, to a maximum of two processors per server. See Table 6–3.
4. One memory board with 256 MB is included with each VX1305-BSE/-BSU package. Additional 256 MB memory styles is selected, expandable to a total of four. See Table 6-4 for ordering information.
5. Two 9-GB hard disk drives are included with each VX1305-BSE/-BSU package. One additional drive (ordered separately) can be added
6. A connection package (Table 6-5), optional user access components (Table 6-6), optional PCI Thru card and software package must be ordered separately.
7. A tape is recommended for back-up. Order the following styles if desired:

PCT12000-DAT	12 GB DAT Tape Drive (Qty. 1)
EXD221-SXR	Tape Drawer (Qty. 1, drawer will accommodate 2 tapes)
CBL2210-OSM	10 foot SCSI Interface Cable (Qty. 1, Note that this cable is between the tape and server RAID adapter)
OSM1000-PRC	IEC320 Rack to Rack Power Cord (Qty. 1)

VX1305 Servers



* Includes one processor, one memory board with 256 MB (DIM10072-256), and two 4GB Disks (HDS417C).

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Figure 6-1. Road Map for Ordering VX1305 Servers

Server Components

This subsection provides ordering information for VX1305-BSE/-BSU server components

Orders for server A (server position 1) must include the following:

- VX1305-BSE (Table 6-2)
- Additional processor, if any (Table 6-3)
- Additional memory, if any (Table 6-4)
- Connection package (Table 6-5) and optional PCI Thru card
- Optional: User access components (Table 6-6)

Orders for server B to J (server positions 2 to 10) must include:

- VX1305-BSU (Same contents as VX1305-BSE, Table 6-2)
- Same selections as for VX1305-BSE (Table 6-3 through Table 6-6)

Note: *Up to five servers per domain; up to ten servers per dual domain system.*

See Figure 6-1 for a road map on ordering VX1305 servers.

Basic Server Components

Table 6-2 lists components included with the VX1305-BSE and VX1305-BSU servers.

VX1305 Servers

Table 6–2. VX1305-BSE/-BSU Basic Components

Component Style Name	Description	Qty
ADP68501-FTF	68F/50F SCSI CABLE ADAPTER	1
CAG31-DR2	3X RAID CAGE, DR2	1
CBL321-SFR	INT SCSI SFR OPTION	1
CDR1432-SI	14X-32X SCSI CD-ROM	1
DIM10072-256	PC 100 MHz SDRAM 256MB	1
DR20001-OK1	OPERATING KIT	1
DR200081-LBN	DR/2 FOR NT	1
DR200081-Z	DR/2 RACKMOUNT SERVER- CHASSIS	1
DSR3500-512	500 MHz W/512K CACHE	1
HDL917-C	9-GB P-WIDE SCA	2
RAD5003-P64	3CHNL HBA RAID CTLR	1
RAD5163-MEB	16-MB SIMM FOR RAD CTLR WITH BATTERY	1
VX1300-FAS	FASCIA, VX1300 SERVER	1
VX1801-CPS	ClearPath SERVER APPLICATION	1

Add-On Processor Board

Table 6–3 lists the add-on processor board and associated voltage regulator available for use with *VX1305* servers.

Table 6–3. Add-On Processor Board, VX1305 Servers

Component Style Number	Description	Qty.
DSR2450-512 or DSR3500-512	450 MHz W/512K CACHE 500 MHz W/512K CACHE (Currently Available)	1
DSR200081-P2U	VOLTAGE REGULATOR	1

Additional Memory Packages

Table 6–4 lists the additional memory packages available for use with VX1305 servers at time of initial system order.

Table 6–4. Memory Packages, VX1305 Servers

Style Number	Qty.	Description
Additional Memory ¹		
DIM10072-256	1	PC 100 MHz SDRAM, 256MB

Notes:

1. Up to three (3) additional memory DIMMs can be installed in the server. Memory styles can be intermixed..

Connection Packages and Optional PCI Thru Card

Table 6–5 list components included with the connection packages for VX1305 servers.

Table 6–5. Connection Package Components, VX1305 Servers

Component Style (Included with Package Style)	Description	Package Style Name	
		NX1305-1NT ¹	NXU1305-NT ²
CBL25-APX	25-FOOT CABLE ASSEMBLY	-	1
CSB3-15C	CSB3 15 FOOT CABLE ASSEMBLY, COAX	-	1
CSB3-PCI	PC ASSY, CS3PCI	1	1
DSH600004-TBT	4-METER ETHERNET CABLE	-	2
ETH1010052-PCI	INTEL 10/100 NETWORK ADAPTER	1	1
USE1936-LC8	IEC320 “Y” POWER CORD	1	1

Notes:

1. Required for single-domain systems (VX1305-BSE).
2. Required if optional server is ordered (VX1305-BSU).

In addition to the above connection package, if the server is to be connected via a PCI Thru card the following optional style can be ordered:

Style: PCI3-FTH, PCI Thru Card (Qty. 1)

See Figure 6–2 and Section 5 for typical locations and connection to the server.

Optional User Access Components

Table 6–6 lists components included with the optional user access components package, style VX4000-CP3.

Table 6–6. VX4000-CP3 Optional User Access Components, VX1305 Servers

Style Number	Qty.	Description
B25-LC	1	Line Cord (Note 1)
EVG2100-P	1	15-Inch Monitor, Color
PCK1-EXT	2	Cable M to F PS2 Keyboard EXT
PCK104-SKB	1	Keyboard (Note 2)
PWM1-PS2	1	2-Button Mouse
SVG100-EXT	1	M to F SVGA Extension Cable

Notes:

1. Line cord selection must be based on site location.
2. Language selection must be based on site location.

Single-Server to Multi-Server Upgrades VX1305

VX1305-BSU enables upgrading a single-server to a Multi-server system. VX1305-BSU contains the same component styles as VX1305-BSE.

Note: *Up to five servers per domain; up to ten servers per dual domain system.*

Each VX1305-BSU (server B to J) order must include the following:

- VX1305-BSU (Same contents as VX1305-BSE, Table 6–2)
- Additional processors, if any (Table 6–3)
- Additional memory, if any (Table 6–4)
- Connection package (Table 6–5)
- Optional: User access components (Table 6–6)

Configuration Guidelines VX1305

Table 6-7 lists guidelines for configuring VX1305 servers. Figure 6-2 shows the connection from a VX1305 server to the CIOM card in the CEC module or to the PCI Thru card in channel racks.

Table 6-7. Configuration Guidelines, VX1305 Servers

Area	Rule/Recommendation
Windows NT Connection Packages	See Table 6-5 for details.
Processor Addition	One additional processor may be added to a maximum of two per server. See Table 6-3 for details.
Disk Addition	Additional disk may be added to a maximum of three per server. See Table 6-1 for recommendations.
Memory Additions	Three increments of 256 MB can be added to a memory board. See Table 6-4.
PCD Generation	Refer to Appendix B of the <i>A Series and ClearPath HMP NX Systems I/O Hardware Configuration Guide (7008 6087)</i> for information on PCD generation.

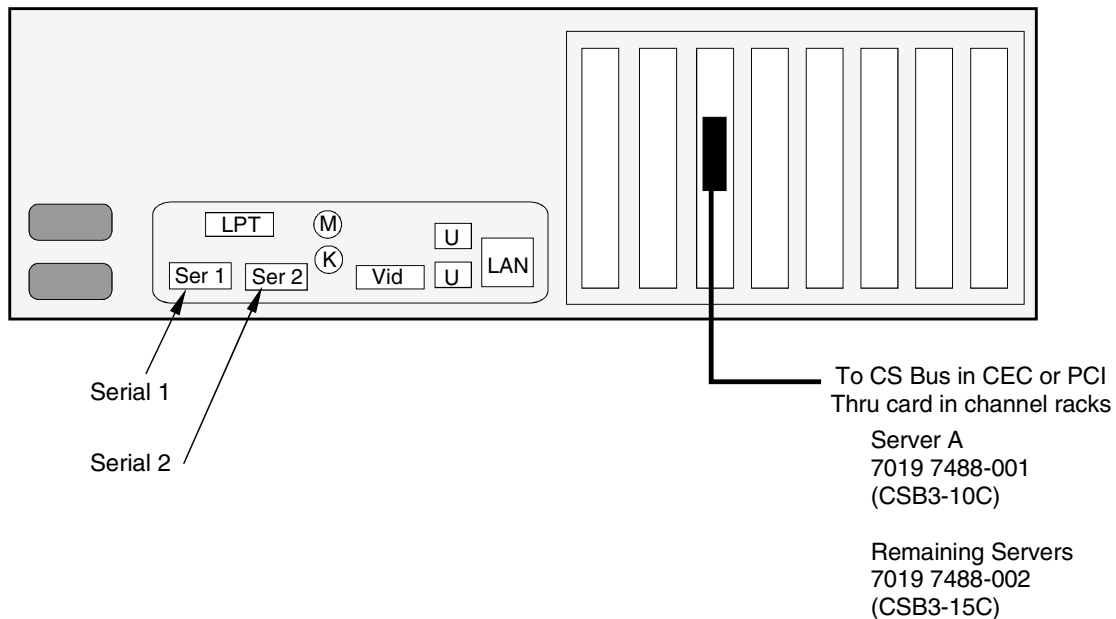


Figure 6-2. VX1305 Server CS Bus Cable Connection

VX1505 Servers

Note: This configuration guide lists the basic features and options offered with VX1505 servers. The VX1505 servers supports Windows NT. Your Unisys representative can provide details on server options available beyond those documented here.

VX1505 Basic Features

- One to ten servers (Five maximum per domain)
 - VX1505-BSE (server A: server position 1)
 - VX1505-BSU (server B, C, D, E, F, G, H, I, or J: server positions 2, 3, 4, 5, 6, 7, 8, 9, or 10)
- One to four 500- or 550-Mhz processors per server (all processor within a server must be the same style)
- One memory card per server
 - Up to maximum of 4-GB or 8-GB in the server depending on memory style used. Select from 128-MB or 256-MB DIMM sets. Memory styles can not be intermixed. Expanding to 8-GB requires special styles. See server specifications.
- PCI/ISA architecture
 - One ISA
 - Six PCI
 - One shared ISA/PCI card slot
- Dedicated peripheral devices, per server:
 - Two hot docking 3.5-inch bays for 9-GB SCSI disks.
 - One CD-ROM drive
 - One 1.44 MB 3.5-inch diskette drive
- Optional redundant hot-swap power supply
- Redundant hot-swap cooling fan
- Connection and user access packages depending on client requirements

Table 6–8 lists the standard features provided with the VX1505-BSE/-BSU packages. Additional processors, additional memory, connection packages, and user access components must be ordered separately.

Figure 6–8 provides a road map for ordering VX1505 servers. The remainder of this subsection describes the server contents.

Table 6–8. Basic Features, VX1505 Servers

VX1505 Servers ⁴	Processors ^{2,3,8}	Memory ⁴		10/100 Mbps LAN Interface	3.5-Inch 1.44-MB Floppy Disk Drive	CD-ROM Drive	DAT Tape Drive ⁷	RAID 9-GB Hard Disk Drives ⁵	
		Min.	Max.	Std.	Std.	Std.	Std.	Std.	Max.
Per Server ^{1,6,7}	1 to 4	0.5-MB	8-GB	2	1	1	0	2	2

Notes:

1. VX1505-BSE includes the basic components listed in Table 6–10. VX1505-BSU contains the same basic components.
2. VX1505-BSE/-BSU orders required the selection of 1 to 4 of the following:

XER2450-512	Pentium II Xeon CPU, 450-Mhz, 512KB cache
XER2450-1MB	Pentium II Xeon CPU, 450-Mhz, 1MB cache
XER2450-2MB	Pentium II Xeon CPU, 450-Mhz, 2MB cache
XEO3500-512	Pentium III Xeon CPU, 500-Mhz, 512KB cache
XEO3500-1MB	Pentium III Xeon CPU, 500-Mhz, 1MB cache
XEO3500-2MB	Pentium III Xeon CPU, 500-Mhz, 2MB cache
XEO3550-512	Pentium III Xeon CPU, 550-Mhz, 512KB cache
XEO3550-1MB	Pentium III Xeon CPU, 550-Mhz, 1MB cache
XEO3550-2MB	Pentium III Xeon CPU, 550-Mhz, 2MB cache

See Table 6-11
3. All processors with a VX15xx server must be the same style.
4. All VX1505-BSE orders require the selection of the following memory styles (Quantity ordered must be in increments of four (32 total) and the same type):

DIM5072-128	128MB Memory, EDO, 50ns DIMMs (32 maximum, including initial)=4.0GB
DIM5072-256	256MB Memory, EDO, 50ns DIMMs (32 maximum, including initial)=8.0GB
5. Two 9-GB hard disk drives are included with each VX1505-BSE/-BSU package. No additional drive can be added.
6. A connection package (Table 6-13), optional user access components (Table 6-14), optional PCT Thru card and software package must be ordered separately.
7. A tape is recommended for back-up. Order the following styles if desired:

PCT12000-DAT	12 GB DAT Tape Drive (Qty. 1)
EXD221-SXR	Tape Drawer (Qty. 1. Drawer will accommodate 2 tapes)
CBL2210-OSM	10 foot SCSI Interface Cable (Qty. 1. Cable is used between the tape and server RAID adapter.)
OSM1000-PRC	IEC320 Rack to Rack Power Cord (Qty. 1)
8. One or more voltage regulators, style XEO24001-VRM, are required dependent upon the number of processors installed. A processor terminator, style XER2400-TRM, is required for each unused processor slot. See Table 6-9.
9. For additional features and enhancement options, reference server specifications
10. For optional hot-swap redundant power supply order component style QR2000101-RPS (Qty. 1)

Table 6–9. VX1505-BSE Processor Requirements

No. of Installed Processors	VRMs Required	Terminators Required	Notes
1	2	3	1st processor requires 2 VRMs. 3 terminators are required (XER2400-TRM)
2	3	2	2nd processor requires 1 additional VRM. 2 terminators are required (XER2400-TRM)
3	5	1	3rd processor requires 2 additional VRMs. 1 terminator is required (XER2400-TRM)
4	6	0	4th processor requires 1 additional VRM. No terminator is required (XER2400-TRM)

Server Components

This subsection provides ordering information for VX1505-BSE/-BSU server components

Orders for server A (server position 1) must include the following:

- VX1505-BSE (Table 6-10) and optional redundant power supply
- Processors, if any (Table 6–11)
- Memory packages (Table 6–12)
- Connection package (Table 6–13) and optional PCI Thru card
- Optional: User access components (Table 6–14)

Orders for server B to J (server positions 2 to 10) must include:

- VX1505-BSU (Same contents as VX1505-BSE, Table 6-10)
- Same selections as for VX1505-BSE (Table 6–11 through Table 6–15)

Note: *Up to five servers per domain; up to ten servers per dual domain system.*

See Figure 6–3 for a road map on ordering VX1505 servers.

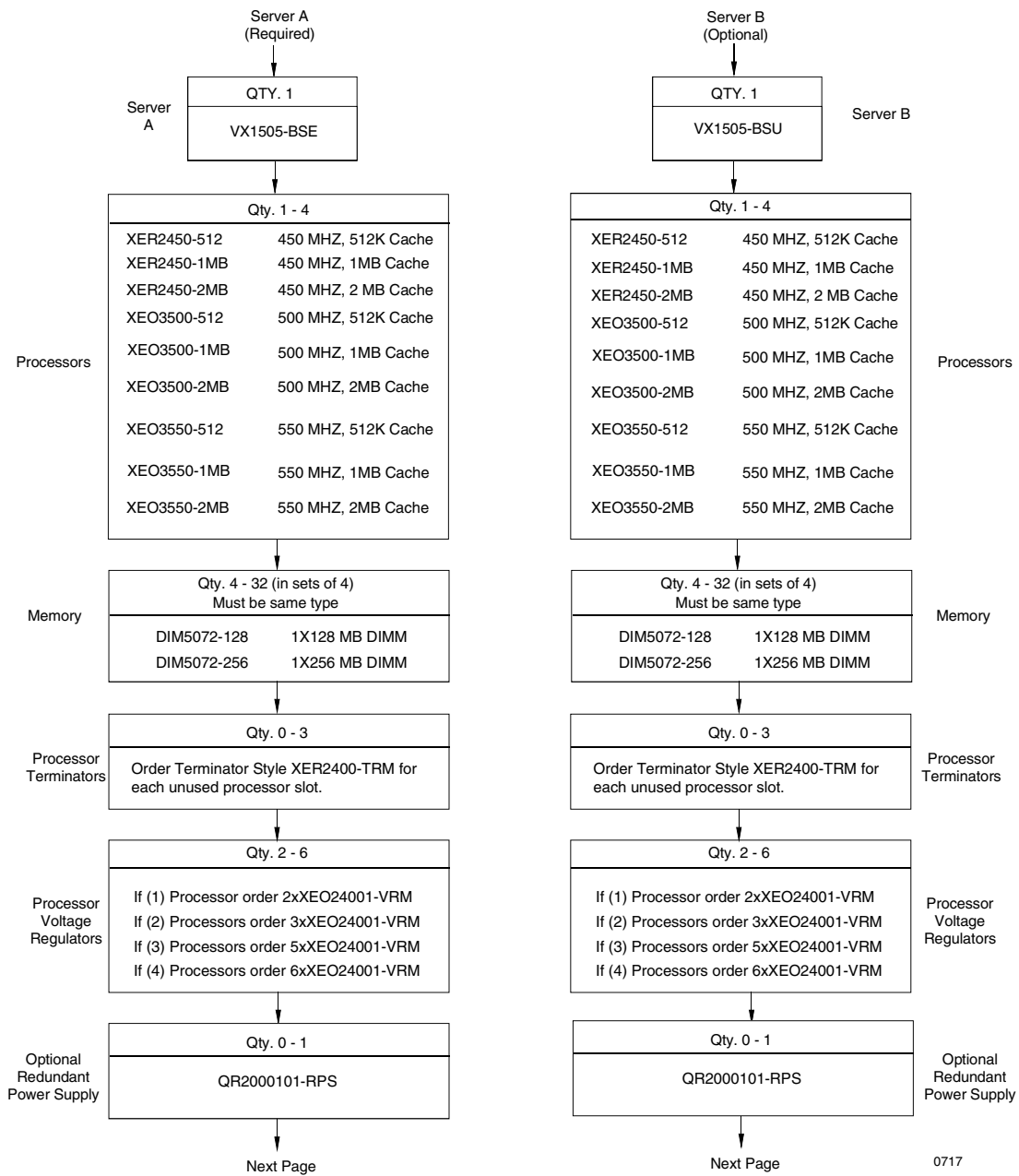


Figure 6-3. Road Map for Ordering VX1505 Servers

VX1505 Servers

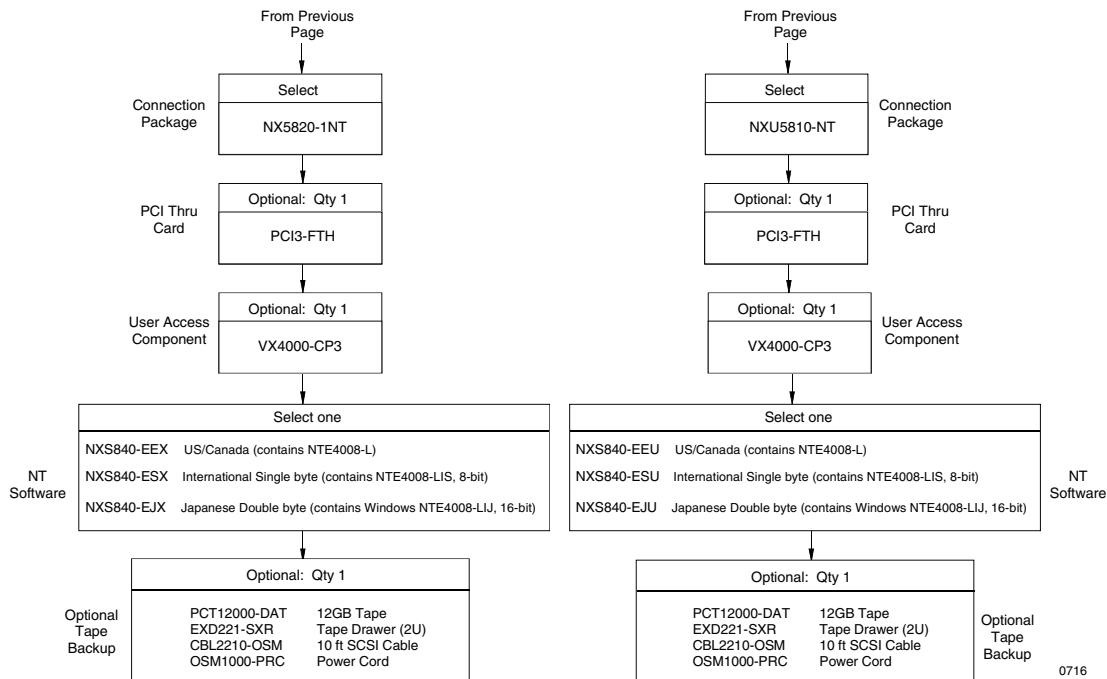


Figure 6-3. Road Map for Ordering VX1505 Servers (Cont.)

Basic Server Components and Optional Redundant Power Supply

Table 6-10 lists components included with the VX1505-BSE and VX1505-BSU servers. For optional hot-swap redundant power supply order component style QR2000101-RPS.

Table 6-10. VX1505-BSE/-BSU Basic Components

Component Style Name	Description	Qty
CDR1740-SI	17-40X SCSI CD-ROM	1
ESR204151-LBN	QR/2 FOR NT	1
ESR204151-OK1	OPERATING KIT	1
ESR204151-Z	Z-BOX QUAD 10 SLOT	1
ESS2000-ANL	FILE MGT: EX ANALYSIS.MRC	1
ESS2000-INS	FILE MGT: ES INTALL MGR	1
ESS99-AGT	FILE MGT: UNISYS AGENTS	1
ESS99-FWK	FILE MGT: CA FRAMEWORK	1
ETH1010052-PCI	INTEL 10/100 NETWORK ADAPTER	1
HDL917-CX1	9-GB SCSI HDD SCA	2
RAD302-BAT	BATTERY BACKUP MODULE	1
RAD302-PCI	CTRL: AMI MegaRAID	1
RAD3162-MEM	16-MB CACHE MEMORY	1
VX1801-CPS	ClearPath Server Application	1

Processors

Table 6–11 lists the processor boards available for use with VX1505 servers.

Table 6–11. Processors, VX1505 Servers

Component Style Number	Description	Qty.
Processors¹		
XER2450-512	Pentium II Xeon CPU, 450-Mhz, 512KB cache	1 to 4
XER2450-1MB	Pentium II Xeon CPU, 450-Mhz, 1MB cache	1 to 4
XER2450-2MB	Pentium II Xeon CPU, 450-Mhz, 2MB cache	1 to 4
XEO3500-512	Pentium III Xeon CPU, 500-Mhz, 512KB cache	1 to 4
XEO3500-1MB	Pentium III Xeon CPU, 500-Mhz, 1MB cache	1 to 4
XEO3500-2MB	Pentium III Xeon CPU, 500-Mhz, 2MB cache	1 to 4
XEO3550-512	Pentium III Xeon CPU, 550-Mhz, 512KB cache	1 to 4
XEO3550-1MB	Pentium III Xeon CPU, 550-Mhz, 1MB cache	1 to 4
XEO3550-2MB	Pentium III Xeon CPU, 550-Mhz, 2MB cache	1 to 4

Notes:

1. A total of 4 processors can be ordered. All processors within the VX1505 server must be the same style..

Memory Packages

Table 6–12 lists the memory packages available for use with VX1505 servers.

Table 6–12. Memory Packages, VX1505 Servers

Style Number	Qty.	Description
Memory¹		
DIM5072-128	Total of 32	128-MB Memory, EDO, 50ns DIMMs (32 maximum, including initial)=4.0-GB
DIM5072-256	Total of 32	256-MB Memory, EDO, 50ns DIMMs (32 maximum, including initial)=8.0-GB

Notes:

1. Memory must be ordered in increments of four DIMMs (4 x DIM5072-128 or 4 x DIM5072-256) up to a total of 32 DIMMs per server. DIMMs must be of the same type.

Connection Packages and Optional PCI Thru Card

Table 6–13 list components included with the connection packages for VX1505 servers.

Table 6–13. Connection Package Components, VX1505 Servers

Component Style (Included with Package Style)	Description	Package Style Name	
		NX5820-1NT ¹	NXU5810-NT ²
CBL25-APX	25-FOOT CABLE ASSEMBLY	-	1
CSB3-15C	CSB3 15 FOOT CABLE ASSEMBLY, COAX	-	1
CSB3-PCI	PC ASSY, CS3PCI	1	1
DSH600004-TBT	4-METER ETHERNET CABLE	-	2
ETH1010053-PCI	INTEL 10/100 NETWORK ADAPTER	1	1
USE1936-LC7	IEC320 "Y" POWER CORD	1	1

Notes:

1. *Required for single-domain systems (VX1505-BSE).*
2. *Required if optional server is ordered (VX1505-BSU).*

In addition to the above connection package, if the server is to be connected via a PCI Thru card the following optional style can be ordered:

Style: PCI3-FTH, PCI Thru Card (Qty. 1)

See Figure 6–4 and Section 5 for typical locations and connection to the server.

Optional User Access Components

Table 6–14 lists components included with the optional user access components package, style VX4000-CP3.

Table 6–14. VX4000-CP3 Optional User Access Components, VX1505 Servers

Style Number	Qty.	Description
B25-LC	1	Line Cord (Note 1)
EVG2100-P	1	15-Inch Monitor, Color
PCK1-EXT	2	Cable M to F PS2 Keyboard EXT
PCK104-SKB	1	Keyboard (Note 2)
PWM1-PS2	1	2-Button Mouse
SVG100-EXT	1	M to F SVGA Extension Cable

Notes:

1. Line cord selection must be based on site location.
2. Language selection must be based on site location.

Single-Server to Multi-Server Upgrades VX1505

VX1505-BSU enables upgrading a single-server to a Multi-server system. VX1505-BSU contains the same component styles as VX1505-BSE.

Note: Up to five servers per domain; up to ten servers per dual domain system.

Each VX1505-BSU (server B to J) order must include the following:

- VX1505-BSU (Same contents as VX1505-BSE, Table 6–10) and optional redundant power supply
- Processors, if any (Table 6–11)
- Memory package (Table 6–12)
- Connection package (Table 6–13) and optional PCI Thru card
- Optional: User access components (Table 6–14)

Configuration Guidelines VX1505

Table 6–15 lists guidelines for configuring VX1505 servers. Figure 6–4 shows the connection from a VX1505 server to the CIOM card in the CEC module or to the PCI Thru card in channel racks.

Table 6–15. Configuration Guidelines, VX1505 Servers

Area	Rule/Recommendation
Windows NT Connection Packages	See Table 6–13 for details.
Processor Addition	Up to three CPUs may be added to a maximum of four per server. See Table 6–11 for details.
Memory Additions	See Table 6–12.
PCD Generation	Refer to Appendix B of the <i>A Series and ClearPath HMP NX Systems I/O Hardware Configuration Guide (7008 6087)</i> for information on PCD generation.

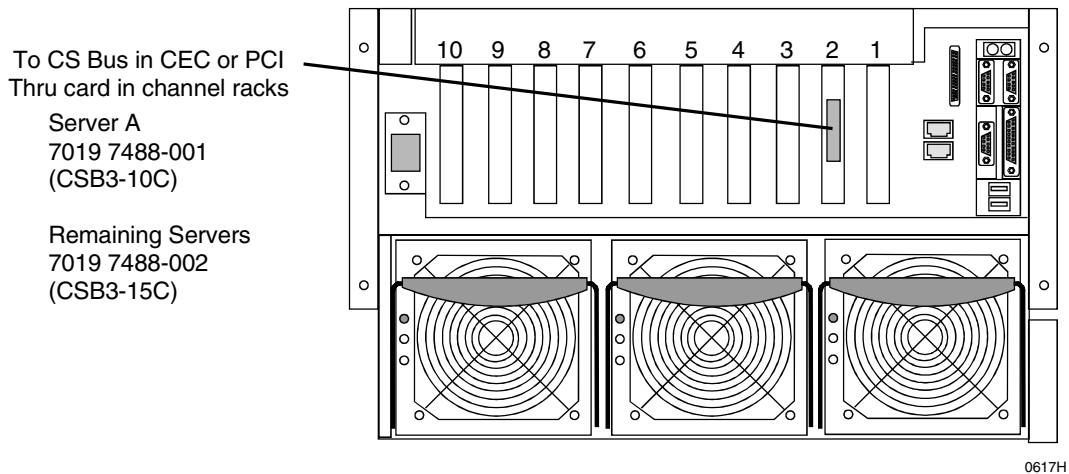


Figure 6–4. VX1505 Server CS Bus Cable Connection

ES5085R Servers

Basic Features

- One to ten (Five maximum per domain)
 - ES5085R servers (Package Style ESR508151-GZN)
- One to eight 550-Mhz processors per server (all processor within a server must be the same style)
- One or two memory card per server
 - Up to maximum 8-GB per memory card depending on memory style used (16-GB per server with two memory cards). Select from 128-MB, 256-MB or 512-MB DIMM sets. Memory styles can not be intermixed.
- Requires NX Companion Package.
- Connection and user access packages depending on client requirements

Table 6–16 lists the basic features provided with the ES5085R servers. Additional processors, additional memory, connection packages, and user access components must be ordered separately.

Table 6–16. Basic Features, ES5085R Servers

ES5085R Servers	Processors ^{2,3}	Memory ⁴		3.5-Inch 1.44-MB Floppy Disk Drive	CD-ROM Drive	DAT Tape Drive ⁷	RAID Hard Disk Drives	
		Min.	Max.	Std.	Std.	Std.	Std.	Max.
Per Server ^{1,5,6,8}	1 to 8	0.5-MB	16-GB	1	1	0	0	2

Notes:

1. Order one (1) ES5085R (Package style ESR508151-GZN) which includes a basic component style ESR508151-Z server.
2. ES5085R orders required the selection of 1 to 8 of the following:

XEO3550-512	Pentium III Xeon CPU, 550-Mhz, 512KB cache
XEO3550-1MB	Pentium III Xeon CPU, 550-Mhz, 1MB cache
XEO3550-2MB	Pentium III Xeon CPU, 550-Mhz, 2MB cache
3. All processors with a ES5085R server must be the same style. If more than four (4) processors are ordered additional styles are required:
 - ESR81-MEZ (1) and ESR-CC4 (1)
4. All ES5085R orders require the selection of the following memory styles:

DIM6168-128	128-MB Memory, 6-ns, 168-PIN DIMMs (Minimum 4; 16/memory board)
DIM6168-256	256-MB Memory, 6-ns, 168-PIN DIMMs (Minimum 2; 16/memory board)
DIM6168-512	512-MB Memory, 6-ns, 168-PIN DIMMs (Minimum 1; 16/memory board)

If interleaving is desired a second memory board is required with equal DIMMs (same type) on each board
5. All ES5085R servers requires ordering one (1) of the following NT software IOE styles:

NXS840-EEX	US/Canada (contains NTE4008-L)
NXS840-ESX	International, single byte (contains NTE4008-LIS, 8-bit)
NXS840-EJX	Japanese double byte (contains Windows NTE4008-LLJ, 16-bit)

These styles include 25 Client Access Licenses (CALs). Additional CALs in multiples of 5 may be ordered using style NTS40-CAL
6. All initial ES5085R servers require companion style NX508151-1NT and additional ES5085R servers require companion style NXU508151-NT. All companion styles also required ordering style ESS508011-N, quantity 1.
7. A tape is recommended for back-up. Order the following styles if desired:

PCT12000-DAT	12 GB DAT Tape Drive
EXD221-SXR	Tape Drawer (one rack can service two servers)
CBL2210-OSM	10 foot SCSI Interface Cable
OSM1000-PRC	IEC320 Rack to Rack Power Cord
8. For connection to an UPS, order style UPS111-EXP, quantity one and one UPS interconnect cable.
9. For additional features and enhancement options, reference server specifications

Server Components

This subsection provides ordering information for ES5085R server components

Orders for initial server A (server position 1) must include the following:

- Package style ESR508151-GZN
- Processors, if any (Table 6–17)
- Memory packages (Table 6–18)
- Connection package (Table 6–19) and optional PCI Thru card
- Optional: User access components (Table 6–20)

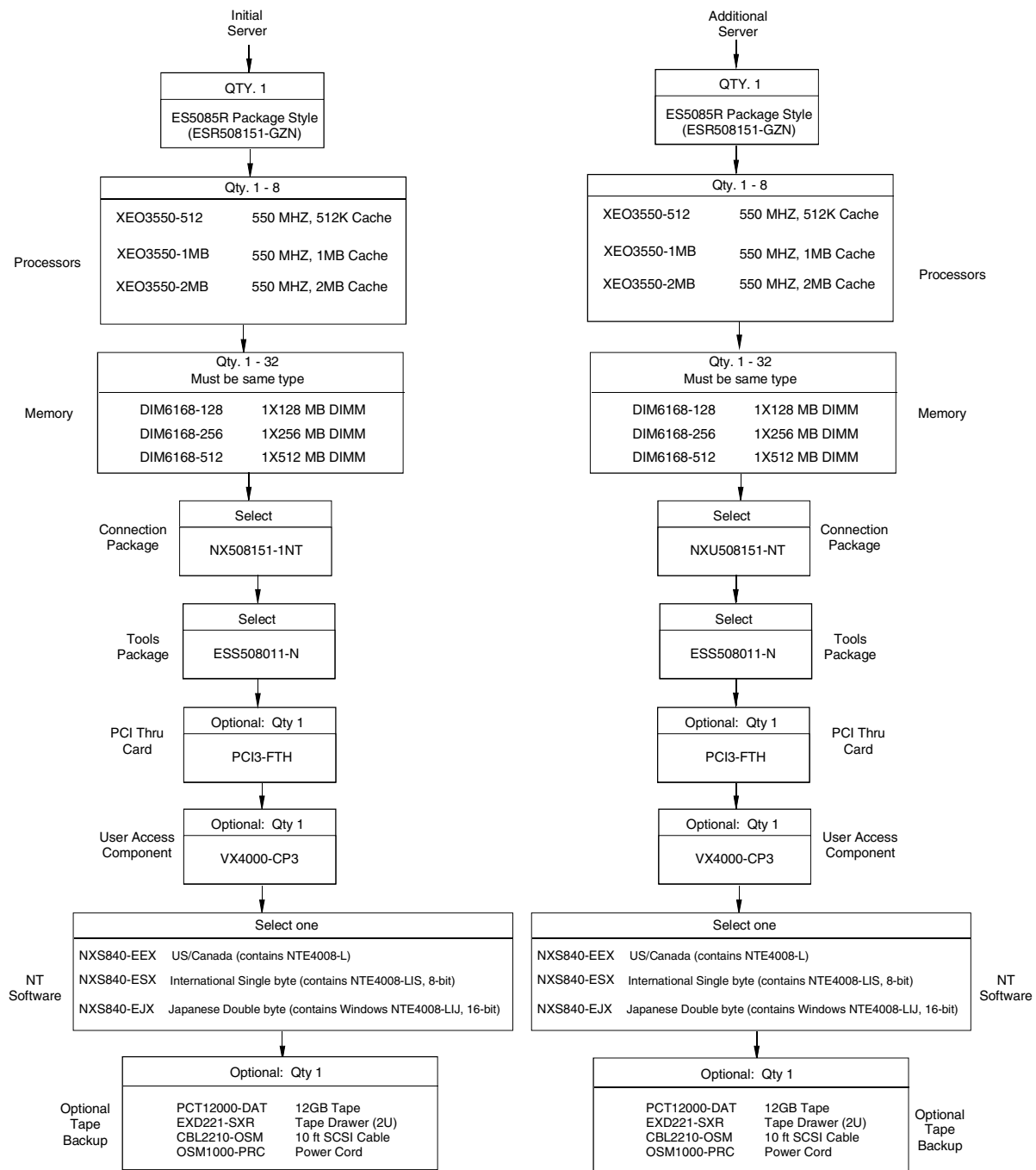
Orders for additional servers B to J (server positions 2 to 10) must include:

- Package style ESR508151-GZN
- Same selections as for ES5085R servers (Table 6–17 through Table 6–20)

Note: *Up to five servers per domain; up to ten servers per dual domain system.*

See Figure 6–5 for a road map on ordering ES5085R servers.

ES5085R Servers



0845

Figure 6-5. Road Map for Ordering ES5085R Servers

Processors

Table 6–17 lists the processor boards available for use with ES5085R servers.

Table 6–17. Processors, ES5085R Servers

Component Style Number	Description	Qty.
Processors¹		
XEO3550-512	Pentium III Xeon CPU, 550-Mhz, 512KB cache	1 to 8
XEO3550-1MB	Pentium III Xeon CPU, 550-Mhz, 1MB cache	1 to 8
XEO3550-2MB	Pentium III Xeon CPU, 550-Mhz, 2MB cache	1 to 8

Notes:

1. A total of 8 processors can be ordered. All processors within the ES5085R server must be the same style.

Memory Packages

Table 6–18 lists the memory packages available for use with ES5085R servers.

Table 6–18. Memory Packages, ES5085R Servers

Style Number	Qty.	Description
Memory¹		
DIM6168-128	Total of 32	128-MB Memory, 6-ns, 168-PIN DIMMs (Minimum 4; 16/memory board)
DIM6168-256	Total of 32	256-MB Memory, 6-ns, 168-PIN DIMMs (Minimum 2; 16/memory board)
DIM6168-512	Total of 32	512-MB Memory, 6-ns, 168-PIN DIMMs (Minimum 1; 16/memory board)

Notes:

1. DIMMs must be of the same type on each board.

Connection Packages and Optional PCI

Table 6–19 list components included with the connection packages for ES5085R servers.

Table 6–19. Connection Package Components, ES5085R Servers

Component Style (Included with Package Style)	Description	Package Style Name	
		NX508151-1NT ¹	NXU508151-NT ²
CBL25-APX	25-FOOT CABLE ASSEMBLY	-	1
CSB3-15C	CSB3 15 FOOT CABLE ASSEMBLY, COAX	-	1
CSB3-PCI	PC ASSY, CS3PCI	1	1
DSH600004-TBT	4-METER ETHERNET CABLE	1	2
ETH1010053-PCI	INTEL 10/100 NETWORK ADAPTER	1	1
HDL1817-CX1	18-GB DISK	2	2
RAD5003-P64	CONTROLLER, RAID, LVD 3CH 64-BIT	1	1
RAD5163-MEB	16-MB CACH W/BAT	1	1
USE1936-LC7	IEC320 "Y" POWER CORD	1	1
VX1801-CPS	ClearPath SERVER APPLICATION NT	-	1

Notes:

1. Required for initial ES5085R server.
2. Required if optional additional ES5085R server is ordered.

In addition to the above connection package, if the server is to be connected via a PCI Thru card the following optional style can be ordered:

Style: PCI3-FTH, PCI Thru Card (Qty. 1)

See Figure 6–6 and Section 5 for typical locations and connection to the server.

Optional User Access Components

Table 6–20 lists components included with the optional user access components package, style VX4000-CP3.

Table 6–20. VX4000-CP3 Optional User Access Components, ES5085R Servers

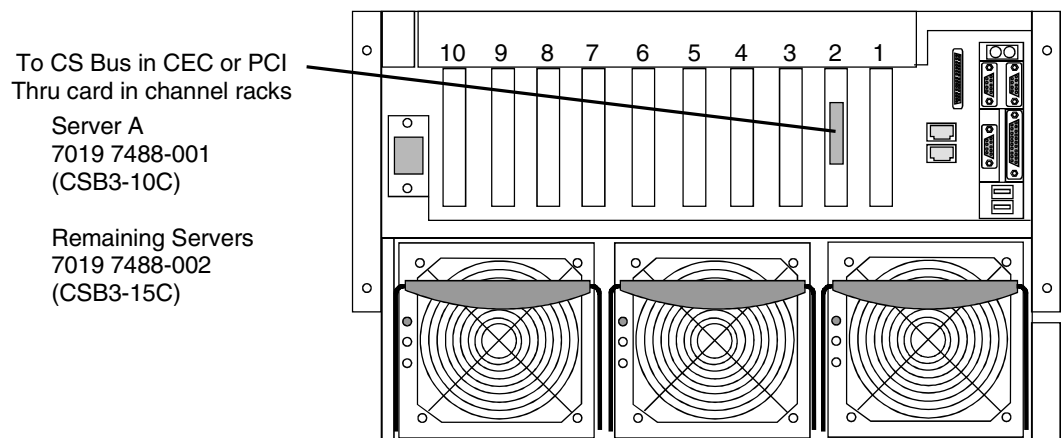
Style Number	Qty.	Description
B25-LC	1	Line Cord (Note 1)
EVG2100-P	1	15-Inch Monitor, Color
PCK1-EXT	2	Cable M to F PS2 Keyboard EXT
PCK104-SKB	1	Keyboard (Note 2)
PWM1-PS2	1	2-Button Mouse
SVG100-EXT	1	M to F SVGA Extension Cable

Notes:

1. Line cord selection must be based on site location.
2. Language selection must be based on site location.

Configuration Guidelines ES5085R

Figure 6–6 shows the connection from a ES5085R server to the CIOM card in the CEC module or to the PCI Thru card in channel racks.



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Figure 6–6. ES5085R Server CS Bus Cable Connection

ES2024R Servers

Basic Features

- One to ten (Five maximum per domain)
 - ES2024R servers (Package Style ESR202141-GZN)
- One or two processors per server (all processor within a server must be the same style)
- One or two memory card per server
 - Up to maximum 8-GB per memory card depending on memory style used (16-GB per server with two memory cards). Select from 128-MB, 256-MB or 512-MB DIMM sets. If interleaving is desired, a second memory board is required and memory styles can not be intermixed.
- Requires NX Companion Package.
- Connection and user access packages depending on client requirements

Table 6–21 lists the basic features provided with the ES2024R servers. Additional processors, additional memory, connection packages, and user access components must be ordered separately.

Table 6–21. Basic Features, ES2024R Servers

ES2024R Servers	Processors ²	Memory ³		3.5-Inch 1.44-MB Floppy Disk Drive	CD-ROM Drive	DAT Tape Drive ⁵	RAID Hard Disk Drives	
		Min.	Max.	Std.	Std.	Std.	Std.	Max.
Per Server ^{1,4,6}	1 to 2	0.5-MB	16-GB	1	1	0	2	6

Notes:

1. Order one (1) ES2024R (Package style ESR202141-GZN).
2. ES2024R orders required the selection of 1 or 2 of the following:
 - CPU3667133-256 Pentium III CPU, 667-Mhz, 256 OD/133 FSB
 - CPU3733133-256 Pentium III CPU, 733-Mhz, 256 OD/133 FSB
 - CPU3800133-256 Pentium III CPU, 800-Mhz, 256 OD/133 FSB
 - CPU3866133-256 Pentium III CPU, 866-Mhz, 256 OD/133 FSB
 When two processors are desired style VRM3-83 must also be ordered
3. All ES2024R orders require the selection of the following memory styles:
 - DIM3368-128 128-MB Memory, SDRAM, PC133-ECC, REGISTERED (order quantity min. 1, max 4)
 - DIM3368-256 256-MB Memory, SDRAM, PC133-ECC, REGISTERED (order quantity min. 1, max 4)
 - DIM3368-512 512-MB Memory, SDRAM, PC133-ECC, REGISTERED (order quantity min. 1, max 4)
 Memory types can be mixed
4. All ES2024R servers requires ordering one (1) of the following NT software IOE styles:
 - For NT:
 - NXS840-EEX US/Canada (contains NTE4008-L)
 - NXS840-ESX International, single byte (contains NTE4008-LIS, 8-bit)
 - NXS840-EJX Japanese double byte (contains Windows NTE4008-LLJ, 16-bit)
 - These styles include 25 Client Access Licenses (CALs). Additional CALs in multiples of 5 may be ordered using style NTS40-CAL
 - For Windows 2000:
 - NXS4405-AEX IOE:WIN2K ADV. SERVER 1-4 US/CAN
 - NXS4405-ASX IOE:WIN2K ADV. SERVER SINGLE BYTE 1-4
 - NXS4405-ADX IOE:WIN2K ADV. SERVER DOUBLE BYTE 1-4
 - NXS4405-AJX IOE:WIN2K ADV. SERVER JAPAN 1-4
5. A tape is recommended for back-up. Order the following styles if desired:
 - ADP69501-FTF SCSI WIDE TO NARROW ADAPTER
 - CBL321-SFR INTERFACE CABLE
 - PCT12000-DAT 12-GB DAT TAPE DRIVE
 - TRM6811-LVD TERMINATOR
6. For connection to an UPS, order style UPS111-EXP, quantity one and one UPS interconnect cable.

Server Components

This subsection provides ordering information for ES2024R server components

Orders for initial server A (server position 1) must include the following:

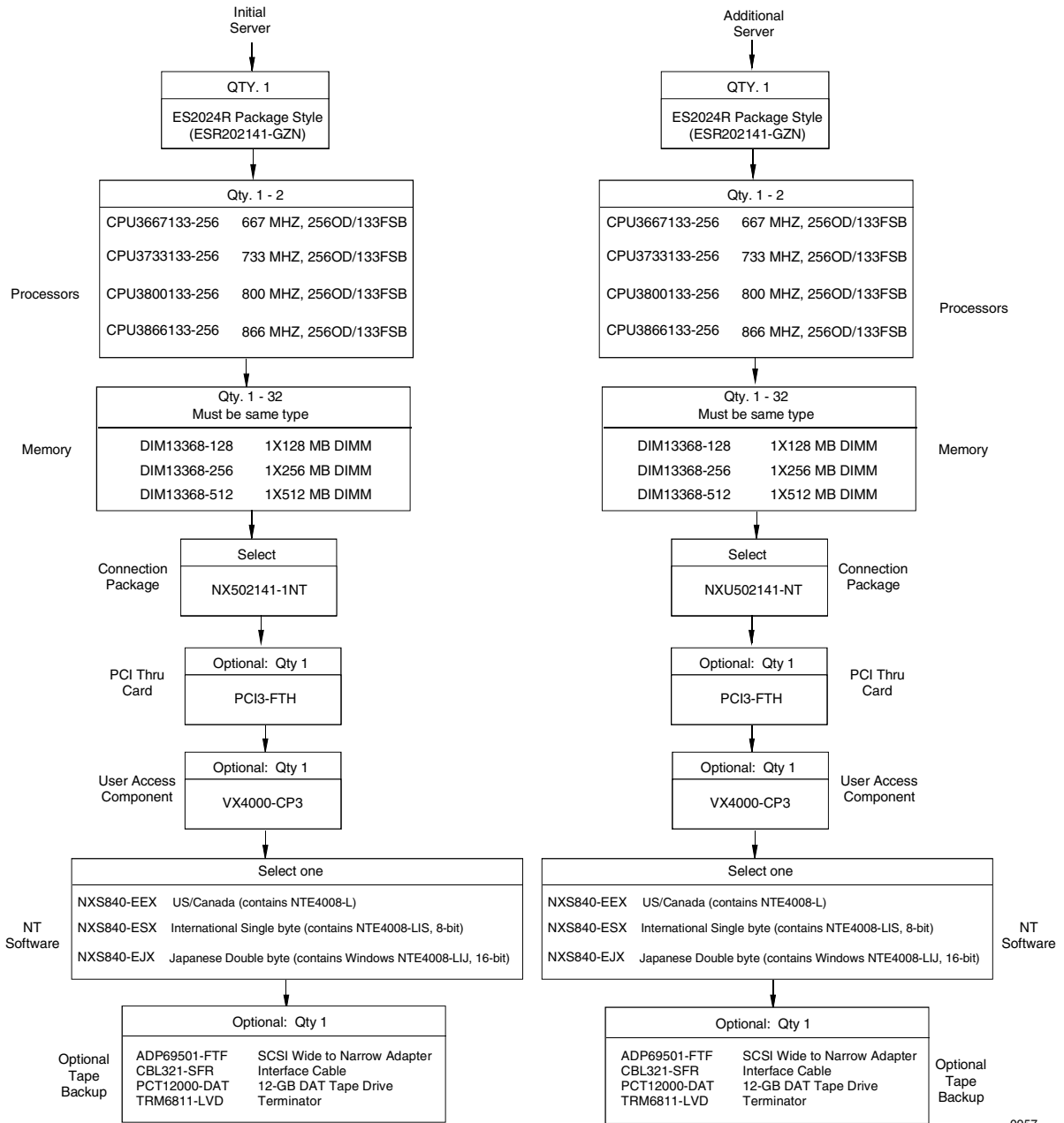
- Package style ESR502141-GZN
- Processors, if any (Table 6–22)
- Memory packages (Table 6–23)
- Connection package (Table 6–24) and optional PCI Thru card
- Optional: User access components (Table 6–25)

Orders for additional servers B to J (server positions 2 to 10) must include:

- Package style ESR202141-GZN
- Same selections as for ES2024R servers (Table 6–22 through Table 6–25)

Note: *Up to five servers per domain; up to ten servers per dual domain system.*

See Figure 6–7 for a road map on ordering ES2024R servers.



0957

Figure 6-7. Road Map for Ordering ES2024R Servers

Processors

Table 6–22 lists the processor boards available for use with ES2024R servers.

Table 6–22. Processors, ES2024R Servers

Component Style Number	Description	Qty.
Processors¹		
CPU3667133-256	Pentium III CPU, 667-Mhz, 256 OD/133 FSB	1 to 2
CPU3733133-256	Pentium III CPU, 733-Mhz, 256 OD/133 FSB	1 to 2
CPU3800133-256	Pentium III CPU, 800-Mhz, 256 OD/133 FSB	1 to 2
CPU3866133-256	Pentium III CPU, 866-Mhz, 256 OD/133 FSB	1 to 2

Notes:

1. A total of 2 processors can be ordered. All processors within the ES2024R server must be the same style.

Memory Packages

Table 6–23 lists the memory packages available for use with ES2024R servers.

Table 6–23. Memory Packages, ES2024R Servers

Style Number	Qty.	Description
Memory¹		
DIM13368-128	Total of 32	128-MB Memory, PC133-ECC (Minimum 4; 16/memory board)
DIM13368-256	Total of 32	256-MB Memory, PC133-ECC (Minimum 4; 16/memory board)
DIM13368-512	Total of 32	512-MB Memory, PC133-ECC (Minimum 4; 16/memory board)

Notes:

1. Memory must be of the same type on each board.

Connection Packages and Optional PCI

Table 6–24 list components included with the connection packages for ES2024R servers.

Table 6–24. Connection Package Components, ES2024R Servers

Component Style (Included with Package Style)	Description	Package Style Name	
		NX502141-1NT ¹	NXU502141-NT ²
CBL25-APX	25-FOOT CABLE ASSEMBLY	-	1
CSB3-15C	CSB3 15 FOOT CABLE ASSEMBLY, COAX	-	1
CSB3-PCI	PC ASSY, CS3PCI	1	1
DSH600004-TBT	4-METER ETHERNET CABLE	2	2
ES202141-PS	POWER:250 WATT HOT PLUG (REDUNDANT)	-	1
ES2024-18G	18-GB DRIVE/ESR2024	2	2
ETH1010052-PCI	INTEL 10/100 NETWORK ADAPTER	1	1
OSM1000-PRC	OSM POWER CORD	3	3
RAD5003-P64	CONTROLLER, RAID, LVD 3CH 64-BIT	1	1
RAD5163-MEB	16-MB CACH W/BAT	1	1
VX1801-CPS	ClearPath SERVER APPLICATION NT	1	1

Notes:

1. Required for initial ES2024R server.
2. Required if optional additional ES2024R server is ordered.

In addition to the above connection package, if the server is to be connected via a PCI Thru card the following optional style can be ordered:

Style: PCI3-FTH, PCI Thru Card (Qty. 1)

See Figure 6–8 and Section 5 for typical locations and connection to the server.

Optional User Access Components

Table 6–25 lists components included with the optional user access components package, style VX4000-CP3.

Table 6–25. VX4000-CP3 Optional User Access Components, ES2024R Servers

Style Number	Qty.	Description
B25-LC	1	Line Cord (Note 1)
EVG2100-P	1	15-Inch Monitor, Color
PCK1-EXT	2	Cable M to F PS2 Keyboard EXT
PCK104-SKB	1	Keyboard (Note 2)
PWM1-PS2	1	2-Button Mouse
SVG100-EXT	1	M to F SVGA Extension Cable

Notes:

1. Line cord selection must be based on site location.
2. Language selection must be based on site location.

Configuration Guidelines ES2024R

Figure 6–8 shows the connection from a ES5044R server to the CIOM card in the CEC module or to the PCI Thru card in channel racks.

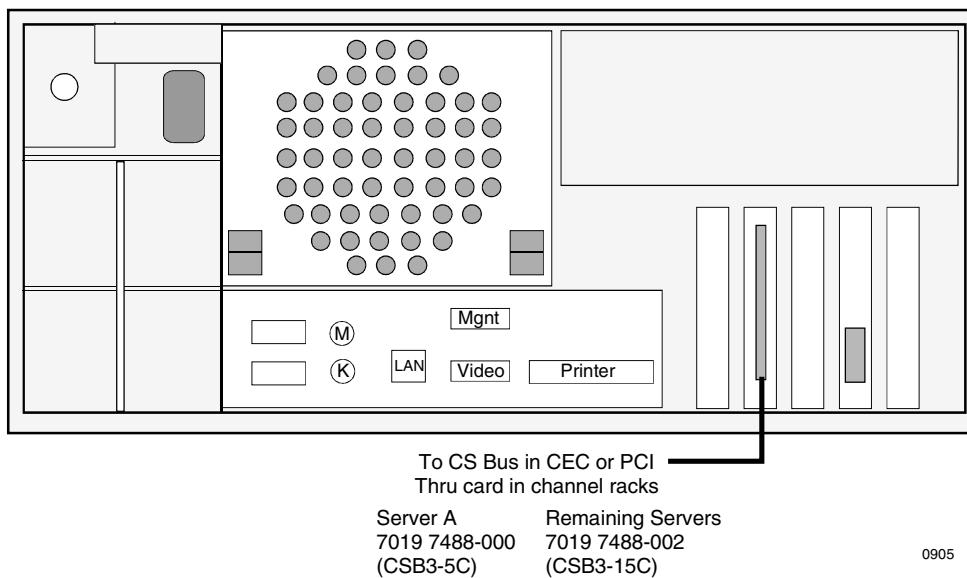


Figure 6–8. ES2024R Server CS Bus Cable Connection

ES5044R Servers

Basic Features

- One to ten (Five maximum per domain)
 - ES5044R servers (Package Style ESR504141-GZN)
- One or four processors per server (all processor within a server must be the same style)
- One or two memory card per server
 - Up to maximum 8-GB per memory card depending on memory style used (16-GB per server with two memory cards). Select from 128-MB, 256-MB or 512-MB DIMM sets. If interleaving is desired, a second memory board is required and memory styles can not be intermixed.
- Requires NX Companion Package.
- Connection and user access packages depending on client requirements

Table 6–26 lists the basic features provided with the ES5044R servers. Additional processors, additional memory, connection packages, and user access components must be ordered separately.

Table 6–26. Basic Features, ES5044R Servers

ES5044R Servers	Processors ^{2,3}	Memory ⁴		3.5-Inch 1.44-MB Floppy Disk Drive	CD-ROM Drive	DAT Tape Drive ⁷	RAID Hard Disk Drives	
		Min.	Max.	Std.	Std.	Std.	Std.	Max.
Per Server ^{1,5,6,8}	1 to 4	256-MB	8-GB	1	1	0	2	2

Notes:

1. Order one (1) ES5044R (Package style ESR504141-GZN).
2. ES5044R orders required the selection of 1 to 4 of the following:
 - XEO37001-1MB Pentium III Xeon 700 MHz CPU, 1MB cache
 - XEO37001-2MB Pentium III Xeon 700 MHz CPU, 2MB, cache
 - XEO38001-2MB Pentium III Xeon 800 MHz CPU, 2MB, cache
3. All processors with a ES5044R server must be the same style. For 2 to 4 processors, order XEO37001-VRM (1 per processor). XEO37001-TRM terminator must be ordered for each unused processor slot.
4. All ES5044R orders require the selection of the following memory styles:
 - DIM10068-64 64-MB Memory, PC100 DIMMs (Minimum 4; 16/memory board)
 - DIM10068-128 128-MB Memory, PC100 DIMMs (Minimum 4; 16/memory board)
 - DIM10068-256 256-MB Memory, PC100 DIMMs (Minimum 4; 16/memory board)
 - DIM10068-512 512-MB Memory, PC100 DIMMs (Minimum 4; 16/memory board)
 If interleaving is desired a second memory board is required with equal DIMMs (same type) on each board
5. All ES5044R servers requires ordering one (1) of the following software styles:
 - For NT:
 - NXS840-EEX US/Canada (contains NTE4008-L)
 - NXS840-ESX International, single byte (contains NTE4008-LIS, 8-bit)
 - NXS840-EJX Japanese double byte (contains Windows NTE4008-LIJ, 16-bit)
 - For Windows 2000:
 - NXS4405-AEX IOE:WIN2K ADV. SERVER 1-4 US/CAN
 - NXS4405-ASX IOE:WIN2K ADV. SERVER SINGLE BYTE 1-4
 - NXS4405-ADX IOE:WIN2K ADV. SERVER DOUBLE BYTE 1-4
 - NXS4405-AJX IOE:WIN2K ADV. SERVER JAPAN 1-4
6. All initial ES5044R servers require companion style NX502141-INT and additional ES5044R servers require companion style NXU502141-NT.
7. A tape is recommended for back-up. Order the following styles if desired:
 - ADP69501-FTF SCSI wide to narrow adapter
 - CBL321-SFR Interface Cable
 - PCT12000-DAT 12 GB DAT Tape Drive
 - TRM6811-LVD Terminator
8. For connection to an UPS, order style UPS111-EXP, quantity one and one UPS interconnect cable.
9. For additional features and enhancement options, reference server specifications

Server Components

This subsection provides ordering information for ES5044R server components

Orders for initial server A (server position 1) must include the following:

- Package style ESR504141-GZN
- Processors, if any (Table 6–27)
- Memory packages (Table 6–28)
- Connection package (Table 6–29) and optional PCI Thru card
- Optional: User access components (Table 6–30)

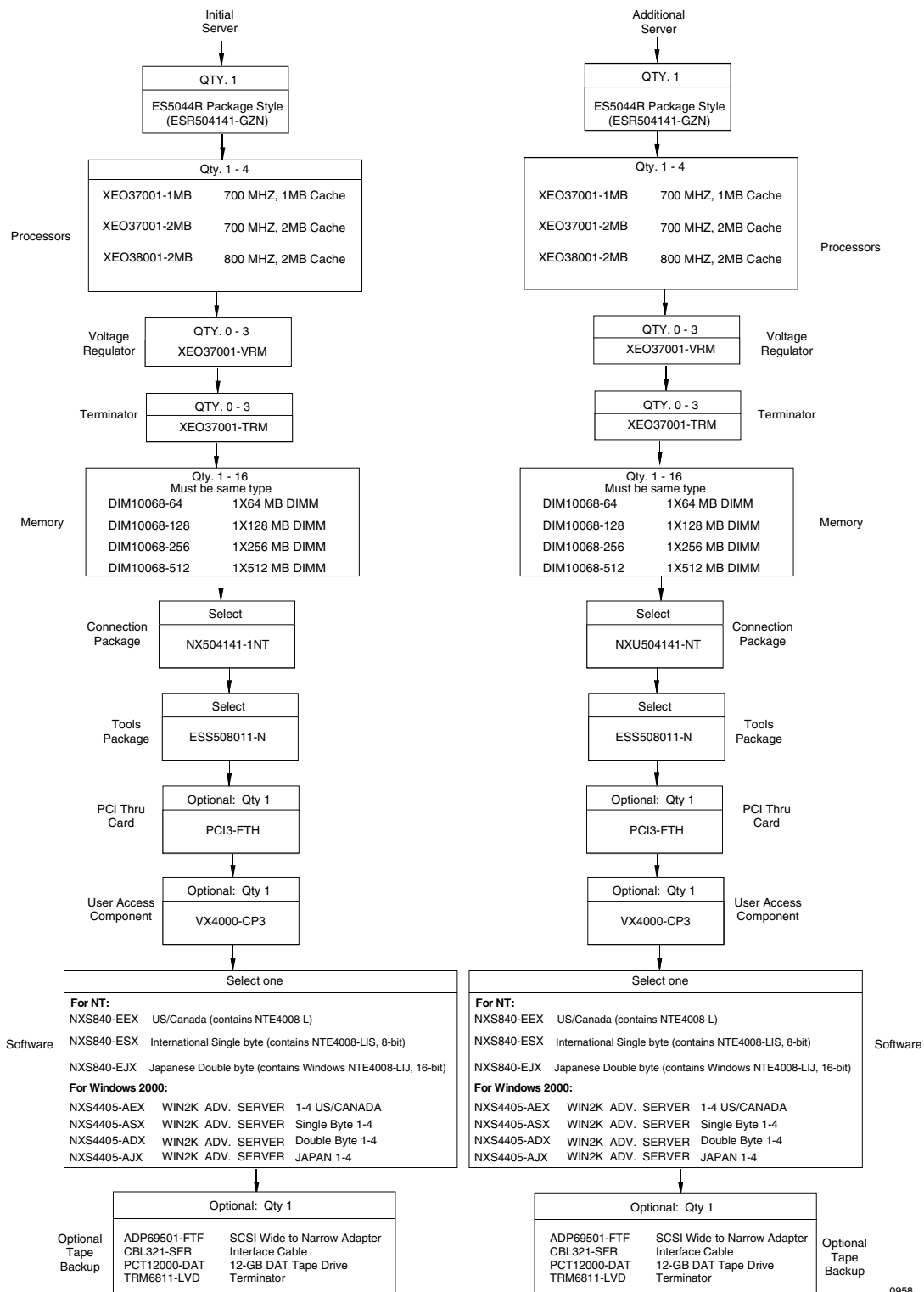
Orders for additional servers B to J (server positions 2 to 10) must include:

- Package style ESR504141-GZN
- Same selections as for ES5044R servers (Table 6–27 through Table 6–30)

Note: *Up to five servers per domain; up to ten servers per dual domain system.*

See Figure 6–9 for a road map on ordering ES5044R servers.

ES5044R Servers



0958

Figure 6-9. Road Map for Ordering ES5044R Servers

Processors

Table 6–27 lists the processor boards available for use with ES5044R servers.

Table 6–27. Processors, ES5044R Servers

Component Style Number	Description	Qty.
Processors^{1,2}		
XEO37001-1MB	Pentium III Xeon 700 MHz, 1MB cache	1 to 4
XEO37001-2MB	Pentium III Xeon 700 MHz, 2MB, cache	1 to 4
XEO38001-2MB	Pentium III Xeon 800 MHz, 2MB, cache	1 to 4

Notes:

1. A total of 4 processors can be ordered. All processors within the ES5044R server must be the same style.
2. **XEO37001-VRM** must be ordered for second to fourth processor (one per processor). **XEO37001-TRM** MUST be ordered for any unused processor slots.

Memory Packages

Table 6–28 lists the memory packages available for use with ES5044R servers.

Table 6–28. Memory Packages, ES5044R Servers

Style Number	Qty.	Description
Memory¹		
DIM10068-64	Total of 16	64MB SDRAM, PC100 DIMMs (Minimum 4; 16/memory board)
DIM10068-128	Total of 16	128MB SDRAM, PC100 DIMMs (Minimum 4; 16/memory board)
DIM10068-256	Total of 16	512 MB SDRAM, PC100 DIMMs (Minimum 4; 16/memory board)
DIM10068-512	Total of 16	512 MB SDRAM, PC100 DIMMs (Minimum 4; 16/memory board)

Notes:

1. Memory must be of the same type on each board.

Connection Packages and Optional PCI

Table 6–29 list components included with the connection packages for ES5044R servers.

Table 6–29. Connection Package Components, ES5044R Servers

Component Style (Included with Package Style)	Description	Package Style Name	
		NX504141-1NT ¹	NXU504141-NT ²
CBL23341-F3	ACC:INT U/WIDE 40IN SCSI	2	2
CBL25-APX	25-FOOT CABLE ASSEMBLY	-	1
CSB3-15C	CSBIII 15 FOOT CABLE ASSEMBLY, COAX	-	1
CSB3-PCI	PC ASSY, CS3PCI	1	1
DSH600004-TBT	4-METER ETHERNET CABLE	1	2
ES204410-HBP	HOTSWAP BK PLANE 1"	2	2
ETH1010052-PCI	INTEL 10/100 NETWORK ADAPTER	1	1
HDM18110-C	18GB 10K LVD SCA W/RAILS	2	2
OSM1000-PRC	OSM POWER CORD	3	3
RAD5003-P64	CONTROLLER, RAID, LVD 3CH 64-BIT	1	1
RAD5163-MEB	16-MB CACH W/BAT	1	1
VX1801-CPS	ClearPath SERVER APPLICATION NT	1	1

Notes:

1. Required for initial ES5044R server.
2. Required if optional additional ES5044R server is ordered.

In addition to the above connection package, if the server is to be connected via a PCI Thru card the following optional style can be ordered:

Style: PCI3-FTH, PCI Thru Card (Qty. 1)

See Figure 6–10 and Section 5 for typical locations and connection to the server.

Optional User Access Components

Table 6–30 lists components included with the optional user access components package, style VX4000-CP3.

Table 6–30. VX4000-CP3 Optional User Access Components, ES5044R Servers

Style Number	Qty.	Description
B25-LC	1	Line Cord (Note 1)
EVG2100-P	1	15-Inch Monitor, Color
PCK1-EXT	2	Cable M to F PS2 Keyboard EXT
PCK104-SKB	1	Keyboard (Note 2)
PWM1-PS2	1	2-Button Mouse
SVG100-EXT	1	M to F SVGA Extension Cable

Notes:

1. Line cord selection must be based on site location.
2. Language selection must be based on site location.

Configuration Guidelines ES5044R

Figure 6–10 shows the connection from a ES5044R server to the CIOM card in the CEC module or to the PCI Thru card in channel racks.

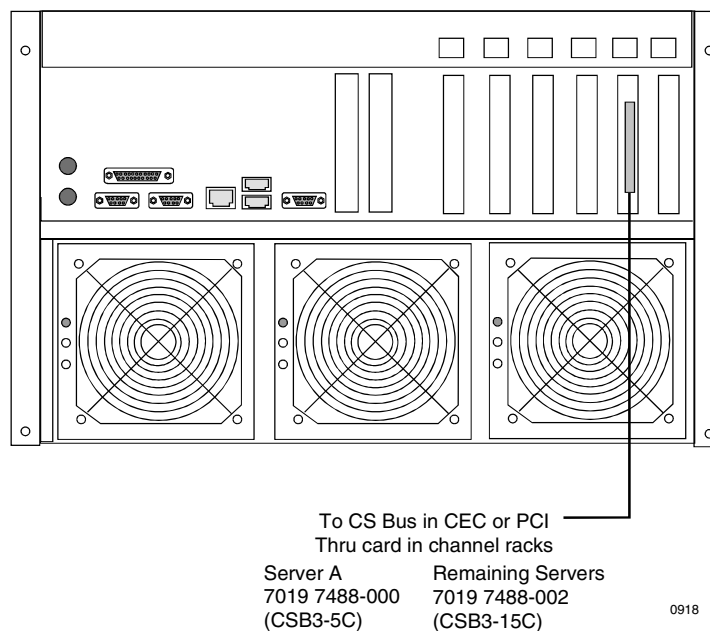


Figure 6–10. ES5044R Server CS Bus Cable Connection

Configuring the Private Maintenance Hub and Public Switching LAN

Tables 6–31 and 6–32 show the assignment for a single domain system with one or two switching LANs, respectively.

Table 6–31. Configuring Single Domain Maintenance Hub and One Switching LAN

Private Maintenance Hub A (Net Gear EN516)		
Port	Destination	Comments
1	SCP Console A	
2	NT Server A	
3	NT Server C	Optional
4	NT Server E	Optional
5	NT Server G	Optional
6	NT Server I	Optional
7		
8		
9		
10		
11		
12	MAINTLAN Domain 0 – Port 0	
13		
14	Reserved for Redundant Hub B	Optional
15	ODW	Optional
16		
Using Public Switching LAN A (Bay Network 350 T)		
Port	Destination	Comments
1	NT Server A	
2	NT Server C	Optional
3	NT Server E	Optional
4	NT Server G	Optional
5	NT Server I	Optional
6		
7		
8		
9		
10		
11	802.3 Domain 0 – LAN 0	
12	802.3 Domain 0 – LAN 1	
13		
14	Reserved for Redundant Public Switching LAN B	Optional
15	ODW	Optional
16	To customer's public LAN	Optional

Configuring the Private Maintenance Hub and Public Switching LAN

Table 6–31. Configuring Single Domain Maintenance Hub and One Switching LAN

Using Public Switching LAN A (Cisco 2924 XL)		
Port	Destination	Comments
1	NT Server A	
2		
3	NT Server C	Optional
4		
5	NT Server E	Optional
6		
7	NT Server G	Optional
8		
9	NT Server I	Optional
10		
11		
12		
13	802.3 Domain 0 – LAN 0	
14	802.3 Domain 0 – LAN 1	
15		
16		
17	ODW	Optional
18	ODW	Optional
19		
20		
21		
22		
23		
24	To customer's public LAN	Optional

Configuring the Private Maintenance Hub and Public Switching LAN

Table 6–32. Configuring Single Domain Maintenance Hub and Two Switching LANs

Private Maintenance Hub A (Net Gear EN516)		
Port	Destination	Comments
1	SCP Console A	
2	NT Server A	
3	NT Server C	Optional
4	NT Server E	Optional
5	NT Server G	Optional
6	NT Server I	Optional
7		
8		
9		
10		
11		
12	MAINTLAN Domain 0 – Port 0	
13		
14	Reserved for Redundant Hub B	Optional
15	ODW	Optional
16		
Using Public Switching LAN A (Bay Network 350 T)		
Port	Destination	Comments
1	NT Server A	
2		
3	NT Server E	Optional
4		
5	NT Server I	Optional
6		
7		
8		
9		
10		
11	802.3 Domain 0 – LAN 0	
12		
13		
14	Public Switching LAN B – Port 14	
15	ODW	Optional
16	To customer's public LAN	Optional
Using Public Switching LAN B (Bay Network 350 T)		
Port	Destination	Comments
1		
2	NT Server C	Optional
3		
4	NT Server G	Optional
5		
6		
7		
8		
9		

Configuring the Private Maintenance Hub and Public Switching LAN

Table 6–32. Configuring Single Domain Maintenance Hub and Two Switching LANs

Using Public Switching LAN B (Bay Network 350 T)		
Port	Destination	Comments
10 11 12 13 14 15 16	802.3 Domain 0 – LAN 1 Public Switching LAN A – Port 14 ODW To customer's public LAN	 Optional Optional
Using Public Switching LAN A (Cisco 2924 XL)		
Port	Destination	Comments
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	NT Server A NT Server E NT Server I 802.3 Domain 0 – LAN 0 ODW ODW Public Switching LAN B – Port 19 To customer's public LAN	 Optional Optional Optional Optional Optional
Using Public Switching LAN B (Cisco 2924 XL)		
Port	Destination	Comments
1 2 3 4 5 6 7 8 9 10 11	NT Server C NT Server G	Optional Optional

Configuring the Private Maintenance Hub and Public Switching LAN

Table 6–32. Configuring Single Domain Maintenance Hub and Two Switching LANs

Using Public Switching LAN B (Cisco 2924 XL)		
Port	Destination	Comments
12	802.3 Domain 0 – LAN 1	
13		
14		
15		
16		
17	ODW	Optional
18	ODW	Optional
19	Public Switching LAN A – Port 19	
20		
21		
22		
23		
24	To customer's public LAN	Optional

Configuring the Private Maintenance Hub and Public Switching LAN

Table 6–33 shows the assignment for a dual domain systems with one Public Switching LAN.

Table 6–33. Configuring Dual Domain Maintenance Hub and One Public Switching LAN

Private Maintenance Hub A (Net Gear EN516)		
Port	Destination	Comments
1	SCP Console A	
2	NT Server A	
3	NT Server C	Optional
4	NT Server E	Optional
5	NT Server G	Optional
6	NT Server I	Optional
7		
8		
9		
10		
11		
12	MAINTLAN Domain 0 – Port 0	
13		
14	Private Maint Hub B – Port 14	
15	ODW	Optional
16		
Private Maintenance Hub B (Net Gear EN516)		
Port	Destination	Comments
1	SCP Console B	
2	NT Server B	
3	NT Server D	Optional
4	NT Server F	Optional
5	NT Server H	Optional
6	NT Server J	Optional
7		
8		
9		
10		
11		
12	MAINTLAN Domain 1 – Port 0	
13		
14	Private Maint Hub A – Port 14	
15	ODW	Optional
16		

Configuring the Private Maintenance Hub and Public Switching LAN

Table 6–33. Configuring Dual Domain Maintenance Hub and One Public Switching LAN (Cont.)

Using Public Switching LAN A (Bay Network 350 T)		
Port	Destination	Comments
1	NT Server A	
2	NT Server B	Optional
3	NT Server C	Optional
4	NT Server D	Optional
5	NT Server E	Optional
6	NT Server F	Optional
7	NT Server G	Optional
8	NT Server H	Optional
9	NT Server I	Optional
10	NT Server J	Optional
11	802.3 Domain 0 – LAN 0	
12		
13	802.3 Domain 1 – LAN 1	
14		
15	ODW	Optional
16	To customer's public LAN	Optional
Using Public Switch LAN A (Cisco 2924 XL)		
Port	Destination	Comments
1	NT Server A	
2	NT Server B	Optional
3	NT Server C	Optional
4	NT Server D	Optional
5	NT Server E	Optional
6	NT Server F	Optional
7	NT Server G	Optional
8	NT Server H	Optional
9	NT Server I	Optional
10	NT Server J	Optional
11		
12		
13	802.3 Domain 0 - LAN 0	
14	802.3 Domain 0 - LAN 1	
15	802.3 Domain 1- LAN 0	
16	802.3 Domain 1- LAN 1	
17	ODW	Optional
18	ODW	Optional
19		
20		
21		
22		
23		
24	To customer's public LAN	Optional

Configuring the Private Maintenance Hub and Public Switching LAN

Table 6–34 shows the assignment for a dual domain systems with two Public Switching LAN.

Table 6–34. Configuring Dual Domain Maintenance Hub and Two Public Switching LANs

Private Maintenance Hub A (Net Gear EN516)		
Port	Destination	Comments
1	SCP Console A	
2	NT Server A	
3	NT Server C	Optional
4	NT Server E	Optional
5	NT Server G	Optional
6	NT Server I	Optional
7		
8		
9		
10		
11		
12	MAINTLAN Domain 0 – Port 0	
13		
14	Private Maint Hub B – Port 14	
15	ODW	Optional
16		
Private Maintenance Hub B (Net Gear EN516)		
Port	Destination	Comments
1	SCP Console B	
2	NT Server B	Optional
3	NT Server D	Optional
4	NT Server F	Optional
5	NT Server H	Optional
6	NT Server J	Optional
7		
8		
9		
10		
11		
12	MAINTLAN Domain 1 – Port 0	
13		
14	Private Maint Hub A – Port 14	
15	ODW	Optional
16		
Using Public Switching LAN A (Bay Network 350 T)		
Port	Destination	Comments
1	NT Server A	
2	NT Server C	Optional
3	NT Server E	Optional
4	NT Server G	Optional

Configuring the Private Maintenance Hub and Public Switching LAN

Table 6–34. Configuring Dual Domain Maintenance Hub and Two Public Switching LANs

Using Public Switching LAN A (Bay Network 350 T)		
Port	Destination	Comments
5	NT Server I	Optional
6		
7		
8		
9		
10		
11		
12		
13		
14		
15	802.3 Domain 0 – LAN 0	Optional
16	802.3 Domain 1 – LAN 1	
	Public Switching LAN B – Port 14	
	ODW	
	To customer's public LAN	
Using Public Switching LAN B (Bay Network 350 T)		
Port	Destination	Comments
1	NT Server B	Optional
2		
3		
4		
5		
6		
7		
8		
9		
10		
11	802.3 Domain 0 – LAN 0	Optional
12	802.3 Domain 1 – LAN 1	
13	Public Switching LAN B – Port 14	
14	ODW	
15	To customer's public LAN	
16		
Using Public Switch LAN A (Cisco 2924 XL)		
Port	Destination	Comments
1	NT Server A	Optional
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

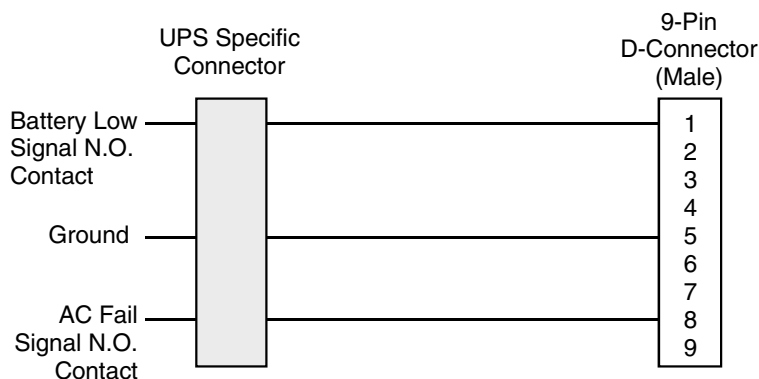
Configuring the Private Maintenance Hub and Public Switching LAN

Table 6–34. Configuring Dual Domain Maintenance Hub and Two Public Switching LANs

Using Public Switch LAN A (Cisco 2924 XL)		
Port	Destination	Comments
13	802.3 Domain 0 – LAN 0	
14		
15	802.3 Domain 1 – LAN 1	
16		
17	ODW	Optional
18	ODW	Optional
19	Public Switching LAN B – Port 19	
20		
21		
22		
23		
24	To customer's public LAN	Optional
Using Public Switch LAN B (Cisco 2924 XL)		
Port	Destination	Comments
1		
2	NT Server B	Optional
3		
4	NT Server D	Optional
5		
6	NT Server F	Optional
7		
8	NT Server H	Optional
9		
10	NT Server J	Optional
11		
12		
13		
14	802.3 Domain 0 – LAN 1	
15		
16	802.3 Domain 1 – LAN 0	
17	ODW	Optional
18	ODW	Optional
19	Public Switching LAN A – Port 19	
20		
21		
22		
23		
24	To customer's public LAN	Optional

Configuring Optional and Recommended UPS

The Uninterruptible Power Supply (UPS) option enables the system to gracefully shut down in the event of a power interruption on the main supply line. The available styles are listed in Table 6–35. If the site UPS does not provide power and status to the entire system (CEC, APC, etc), it should provide power and status connections for the SCP's and all servers. See Figure 6–11 for single SCP/server to UPS status cable connection/site UPS installation. See Figure 6–12 for dual SCP/servers to UPS status cable connection/site UPS installation. If a UPS jumper cable is not listed for the installed UPS model, make a cable as follows:



0232

Please note that style UPS111-EXP should be ordered for each additional NT server. It contains one distribution box and the proper jumper cable to connect to the NT server.

When a central site UPS is used for a dual domain system with redundant SCP consoles, style CBL5-UPS must be ordered separately to cable SCPA and SCPB. See Figure 6–12.

Table 6–35. UPS Options

Component Style Name	Interconnect Configuration and Cable Part No.	Industry-Compatible UPS Systems	Notes
UPS Jumper Cables			
UPS915-WC1	15-Pin Male "D" to 9-Pin Male (7015 5411-000)	Deltec PowerWorks	1, 2, 7
UPS99-WC2	9-Pin Male "D" to 9-Pin Male (7015 6260-000)	American Power Conversion and Phase One UPS and Deltec 1000i	1, 2, 7
UPS925-WC3	25-Pin Male "D" to 9-Pin Male (7015 6278-000)	Best Power Tech	1, 2, 7
UPS925-WC4	25-Pin Male "D" to 9-Pin Male (7015 5429-000)	Exide Powerware and Powerware Plus	1, 2, 7
UPS99-WC5	9-Pin Male "D" to 9-Pin Male (7015 6260-002)	Deltec 2000	1, 2, 7

Configuring Optional and Recommended UPS

Table 6–35. UPS Options

Component Style Name	Interconnect Configuration and Cable Part No.	Industry-Compatible UPS Systems	Notes
UPS915-WC6	15-Pin Male "D" to 9-Pin Male (7015 5411-001)	Deltec 90S	1, 2, 7
	9-Pin Male "D" to 9-Pin Male (7015 6260-003)	Deltec 6000	1, 2, 7
Expansion Box Options			
UPS111-EXP	Expansion Box for Variable Length Cable	Any of the above	3, 7, 8
UPS5-EXP	Expansion Box with Fixed-Length (5-Foot) Interconnect Cable	Any of the above located in the same cabinet or adjacent (latched together) cabinet	4, 7
UPS1000-INT	UPS/SCJ Interconnect Box	None of the above. NUL (Japan) use only.	5, 7
UPS Interconnect Cables (One to One Cable)			
CBL5-UPS	UPS Cable (5 ft), 7015 5403-000 9-Pin Female to 9-Pin Female	Any except UPS5-EXP (contains 7015 5403-000)	6, 9
CBL10-UPS	UPS Cable (10 ft), 7015 5403-001 9-Pin Female to 9-Pin Female	Any except UPS5-EXP (contains 7015 5403-000)	6
CBL15-UPS	UPS Cable (15 ft), 7015 5403-005 9-Pin Female to 9-Pin Female	Any except UPS5-EXP (contains 7015 5403-000)	6
CBL25-UPS	UPS Cable (25 ft), 7015 5403-002 9-Pin Female to 9-Pin Female	Any except UPS5-EXP (contains 7015 5403-000)	6
CBL50-UPS	UPS Cable (50 ft), 7015 5403-003 9-Pin Female to 9-Pin Female	Any except UPS5-EXP (contains 7015 5403-000)	6
CBL100-UPS	UPS Cable (100 ft), 7015 5403-004 9-Pin Female to 9-Pin Female	Any except UPS5-EXP (contains 7015 5403-000)	6

Notes:

1. Includes interconnect box (7016 0619-001), NT jumper cable assembly (7015 7789-000), and configuration-specific adapter cable assembly.
2. One UPS interconnect cable (CBLxx-UPS) is required per UPS or add-on style. Must be ordered separately.
3. Includes interconnect box (7016 0619-001) and NT jumper cable assembly (7015 7789-000). Compatible with any of the interconnect configuration styles.
4. Includes interconnect box (7016 0619-001), NT jumper cable assembly (7015 7789-000), and 5-foot UPS cable (CBL5-UPS).
5. Restricted to NUL (Japan) use. Includes interconnect box only.
6. See Table 6-36 to select proper cable length when going between SCP's and servers.
7. The available UPS styles and expansion box options listed contain a NT jumper cable (7015 7789-000) that connects to the NT server only (not used for SCP console). For additional NT server, order UPS111-EXP.
8. Order for additional NT server.
9. Must be ordered separately when central site is used for dual SCP consoles.

The SCP jumper cable (7015 7789-001) and distribution box (7016 0619-001) used for the SCP console is provided with the system under the primary and redundant console styles.

Configuring Optional and Recommended UPS

Table 6–36. Status Selection Between SCP's and Servers

VX1305-BSE/BSU Servers						
FROM\TO	SCP A	SCP B	SERVER A	SERVER B	SERVER C	SERVER D
SCP A	NA	CBL5-UPS ¹	CBL5-UPS	CBL10-UPS	CBL15-UPS	NA
SCP B		NA	CBL5-UPS	CBL5-UPS	CBL15-UPS	NA
SERVER A			NA	CBL5-UPS	CBL5-UPS	CBL10-UPS
SERVER B				NA	CBL5-UPS	CBL10-UPS
SERVER C					NA	CBL10-UPS
SERVER D						NA
VX1505-BSE/BSU Servers						
FROM\TO	SCP A	SCP B	SERVER A	SERVER B	SERVER C	SERVER D
SCP A	NA	CBL5-UPS ¹	CBL10-UPS	CBL10-UPS	CBL10-UPS	NA
SCP B		NA	CBL5-UPS	CBL5-UPS	CBL10-UPS	NA
SERVER A			NA	CBL10-UPS	CBL5-UPS	CBL15-UPS
SERVER B				NA	CBL15-UPS	CBL5-UPS
SERVER C					NA	CBL10-UPS
SERVER D						NA

Notes:

1. Must be ordered when central site UPS is used.

Configuring Optional and Recommended UPS

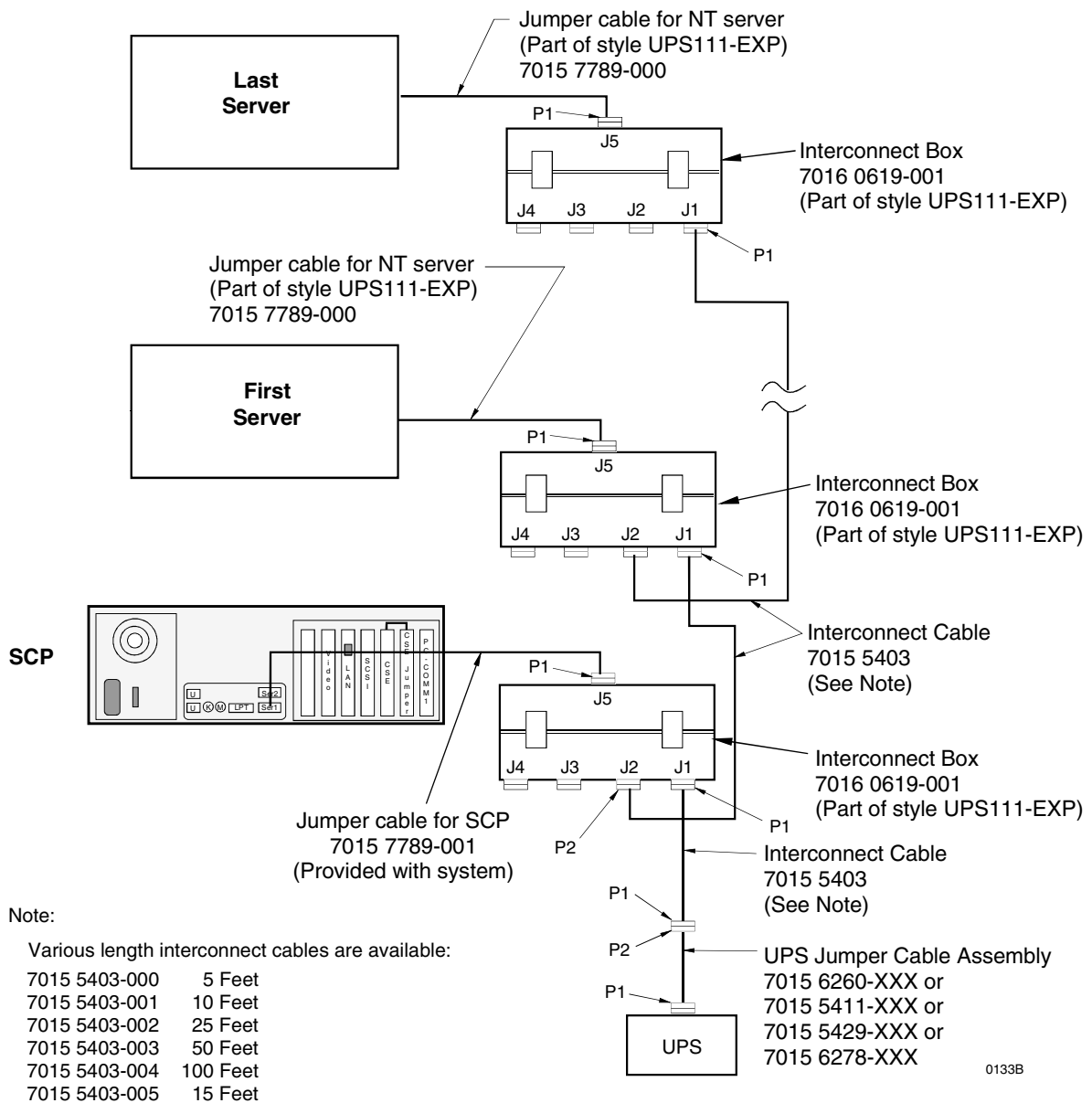


Figure 6–11. Single SCP/Server to UPS Status Cable Connections (Site UPS Installed)

Configuring Optional and Recommended UPS

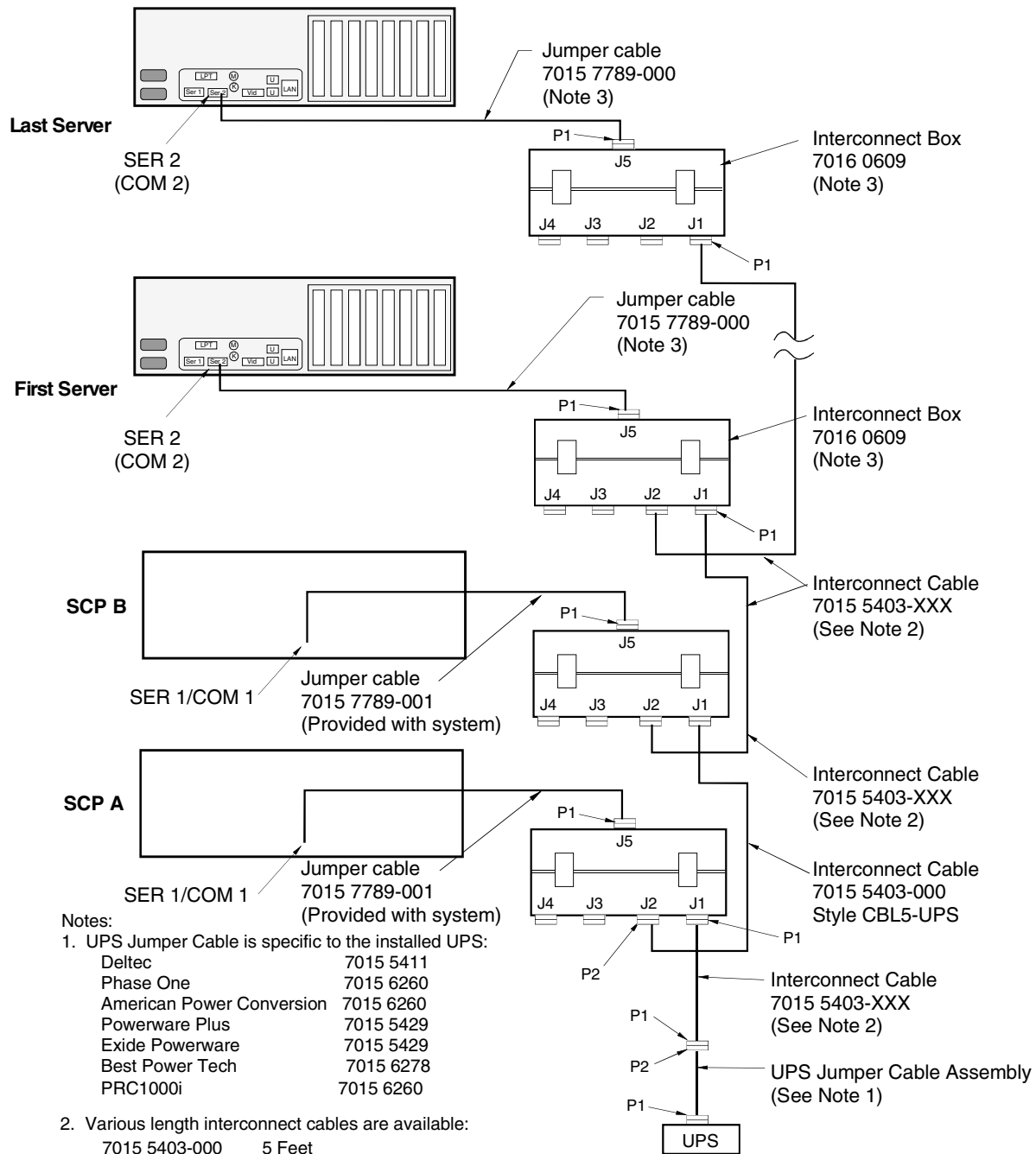


Figure 6-12. Dual SCP/Server to UPS Status Cable Connections (Site UPS Installed)

If a site UPS is not used, Unisys highly recommends at a minimum that a small individual UPS's provided power and status connections to each SCP in the system (2 UPS for redundant SCP). For this application, a small UPS can be obtained from Unisys Direct (Model PRC1000i) to supply power and status for each SCP. The interconnect box/power and status cable is provided with the SCP. See Figure 6-13 and Figure 6-14 for SCP to UPS cabling.

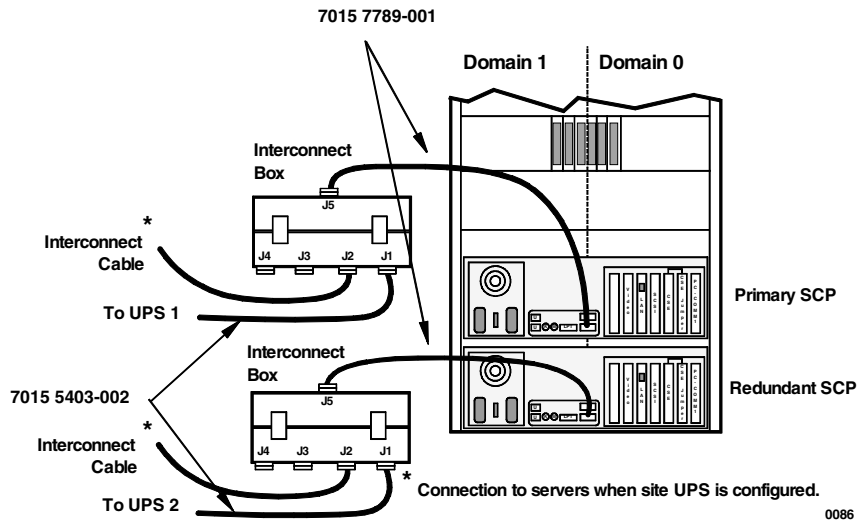


Figure 6-13. SCP to UPS Status Cable

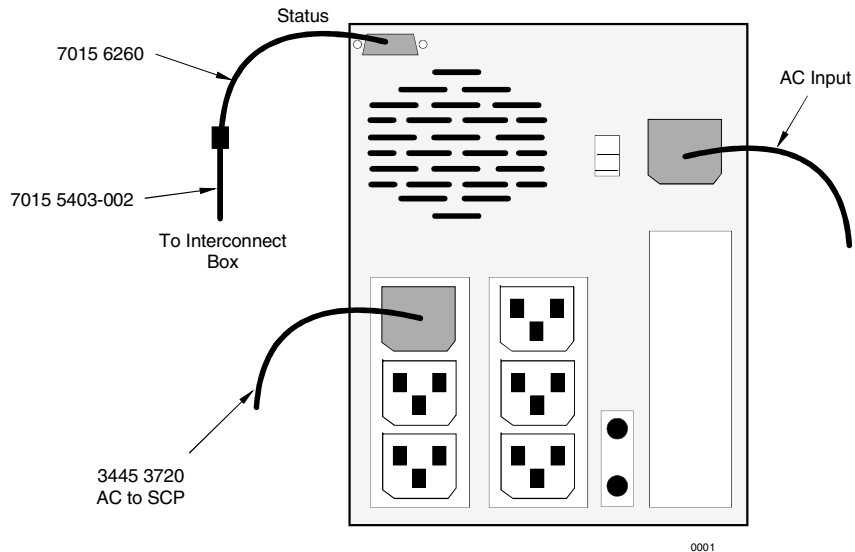


Figure 6-14. Standalone (PRC1000i) UPS to SCP Cabling

Configuring Optional and Recommended UPS

Section 7

Connecting Other Host Systems

Table 7–1 lists guidelines for connecting other host systems via the I/O subsystem.

Table 7–1. Guidelines for Connecting Other Host Systems

Area	Rule/Recommendation
Software level	The system software must be at or higher than the level specified in the I/O Configuration Guide for the specific I/O subsystem being configured.
Shared components	<ul style="list-style-type: none"> • Must be configured, strapped, and named in accordance with the most restrictive requirements of any connected system. • Must be accurately reflected in the system configuration files of all connected systems.
DLP access (migration only)	<ul style="list-style-type: none"> • DLPs must be qualified on all connected systems. • DLPs must be at or higher than the level specified in the I/O Configuration Guide for the specific DLP subsystem being configured. • The configuration must conform to the symmetrical LEM rule (see the <i>I/O Configuration Guide</i> for details).
RFI considerations, other host connections	<p>Connection considerations:</p> <ul style="list-style-type: none"> • The connection to a second host's DLPs via MLI must use a maximum 50-foot external cable length and possibly a LEM. • The 50-foot restriction on cable length limits the physical separation between cabinets sharing MLI interconnecting cables to approximately 44 feet. • Cabinets connected via MLI cables must share the same grounding grid.
	<p>Burst rate considerations:</p> <ul style="list-style-type: none"> • Direct connection: 6 MB per second or greater • LEM connection: Approximately 3 to 3.5 MB per second • Burst rate approximately 40 to 50 percent lower when transferring data across LEM connection

Connecting Other Host Systems

Glossary

A

APC

Automatic Power Control

ASIC

Application specific integrated circuit

ATM

Asynchronous transfer mode

C

CSE

Common scan engine

central processing module (CPM)

The computer hardware unit that controls and executes the instructions contained in object code files. Also called processing module (PM) and instruction processor (IP).

channel, channel adapter

The hardware that interfaces the CMF with external I/O devices via a standard electrical protocol for data transfer, including SCSI, MLI, FDDI, 802.3, and ATM electrical protocols.

CIOM

Common Input/Output Module

CMOS

Complimentary metal oxide semiconductor

channel manager facility (CMF)

through put enhanced channel manager unit

CSBus

Channel service bus

Glossary

D

DAC

Direct access channel

DDMP

Dual-domain, multiple-processor

DIMM

Dual inline memory module

data transfer unit (DTU)

The subunit of an I/O module (IOM) that provides memory-to-memory data transfers for use in disk caching.

data transfer facility (DTF)

enhanced DTU

dual domain adapter (DDA)

Required for dual-domain models. Enables the SCP to communicate with and synchronize the operations of dual-domain systems.

E

ES

Enterprise server

F

F/T

Feedthru

FDDI

Fiber distributed data interface

H

HMP

Heterogeneous multi processing

I

IOCB

Input/Output Control Block

I/O module (IOM)

(1) A hardware module that interfaces with the I/O subsystem and schedules tasks by using a message protocol. (2) A group of units that control input/output on a system, including the task control unit (TCU), input/output unit (IOU), channel manager facility (CMF), and interface adapters (IAs).

I/O unit (IOU)

A component of the I/O module that provides input/output support functions for the master control program (MCP).

instruction processor (IP)

See central processor module (CPM).

J

JTAG

Joint task access group

K

KIOB (I/O Bridge)

A component of the I/O module that provides logic for moving data to and from the memory subsystem.

L

LAN

Local area network

M

MAINTLAN

Maintenance local area network

Mb

Megabit

MB

Megabyte

MLI

Message level interface

Glossary

MSUA

Memory storage unit A style

MSUK

Memory storage unit K style

memory storage unit (MSU)

One of up to three storage modules in each domain of the NX5820 that contains a 96-MB expansion module (MEM96-MOD) and can be expanded to 384 MB in 96-MB increments using MEM96-MOD and/or MEM96-DCM memory expansion modules.

O

OSKAR

Oscillator card (clock)

P

PCI

Peripheral connect interface

Processor Module (PM)

See Central Processor Module (CPM).

Q

QIC

Quarter inch cartridge tape

S

small computer system interface (SCSI)

An industry-standard protocol that supports the transfer of 4-to-40-MB-per-second messages to low- and high-speed peripherals conforming to FIPS industry standards.

system console processor (SCP)

A processing unit that provides the processing and I/O capability for the maintenance subsystem. The SCP also provides the ODT, remote, and maintenance interfaces.

SDSP

Single-domain, single-processor

SS

Super server

U

UPS

Uninterruptible power supply

USD

Unity storage device

Glossary

Index

A

- acronyms, system components, 1-7
- Additional Memory Packages, 6-7
- Add-On Processor Board, 6-6
- Add-On Processor Board, VX1305 Servers, 6-6
- array processing, 1-2

B

- Basic Features, ES2024R Servers, 6-27
- Basic Features, ES5044R Servers, 6-34
- Basic Server Components, 6-14
- bus demand factor (BDF), 5-8

C

- Cables, 2-25
- CD-ROM
 - configuration guidelines reference, 5-17
- Central Equipment Complex (CEC)
 - Section, 1-4
- channel adapters
 - assigning channel loads, 5-8
- channel loading
 - bus demand factor (BDF), 5-8
 - connectivity versus performance, 5-8
- channel rack
 - component descriptions, 4-4
 - configuration guidelines, 4-5
- channels
 - configuring, 5-7
 - migration types, 5-7
 - new types, 5-7
- CIOM Upgrade, 5-6
- ClearPath Enterprise Server NX Product Models, 1-2
- ClearPath Enterprise Server NX5620-K Product Models, 2-14
- ClearPath Enterprise Server NX5820 Product Models, 2-2

- ClearPath Enterprise Server NX5821 Single-Domain, Single-Processor (SDSP) Configurations Models 31 through 71, 2-3
- ClearPath Enterprise Server NX5821-BAS Single-Domain, Single-Processor (SDSP) Configurations, 2-15
- ClearPath Enterprise Server NX5822 Basic Dual-Domain Configurations, 2-19
- ClearPath Enterprise Server NX5822 Dual-Domain, Multi-Processor (DDMP) Configurations Models 32 through 78, 2-6
- CMF External Connectivity, 5-5
- Configuration Diagrams, 5-12
- configuration guidelines, 5-9
 - channel racks, 4-5
 - I/O cabinets, 4-2
 - monitors and displays, 3-11
- Configuration Guidelines ES2024R, 6-32
- Configuration Guidelines ES5044R, 6-39
- Configuration Guidelines ES5085R, 6-25
- Configuration Guidelines for SCP Monitors and ODW Displays, 3-12
- Configuration Guidelines, VX1305 Servers, 6-9
- Configuring Additional OSS7000 Devices, 3-14
- Configuring Channel Racks, 4-3
- Configuring Channels, 5-7
- Configuring Dual Domain Maintenance Hub and One Public Switching LAN, 6-45
- Configuring Dual Domain Maintenance Hub and Two Public Switching LANs, 6-47
- Configuring Operator Display Workstations, 3-12
- Configuring Optional UPS, 6-50
- Configuring Power Net in Channel Racks, 4-6
- Configuring Redundant SCP for the NX5820, 3-10
- Configuring Redundant Switching Hubs, 3-11
- Configuring the Private Maintenance Hub and Public Switching LAN, 6-40
- Connection Package Components, ES2024R Servers, 6-31

Index

Connection Package Components, ES5044R Servers, 6-38
Connection Package Components, ES5085R Servers, 6-24
Connection Package Components, VX1305 Servers, 6-7
Connection Packages, 6-7, 6-16

D

DDDP to DDMP upgrades, 2-31
DDMP to DDMP upgrades, 2-26
displays
 configuration guidelines, 3-11
 maintenance terminals, 3-11
 ODT terminals, 3-11
Dual Domain, 1-3

E

ES2024R Basic Features, 6-26
ES2024R Server Components, 6-28
ES2024R Servers, 6-26
ES2024R Servers, Connection Packages and Optional PCI, 6-31
ES2024R Servers, Memory Packages, 6-30
ES2024R Servers, Optional User Access Components, 6-32
ES2024R Servers, Processors, 6-30
ES5044R Basic Features, 6-33
ES5044R Server Components, 6-35
ES5044R Servers, 6-33
ES5044R Servers, Connection Packages and Optional PCI, 6-38
ES5044R Servers, Memory Packages, 6-37
ES5044R Servers, Optional User Access Components, 6-39
ES5044R Servers, Processors, 6-37
ES5085R Basic Features, 6-19
ES5085R Server Components, 6-21
ES5085R Servers, 6-19
expansion
 operator work space, 3-14
Expansion Box Options, 6-51

G

Guidelines for Connecting Other Host Systems, 7-1

H

hardware overview, 1-4

I

I/O cabinets
 configuration guidelines, 4-2
 configuring, 4-1
 orderable styles, 4-2
I/O Subsystem, 1-5
 contents, 1-5
IOM Channel Expansion, 3-10
IOM Logical Organization, 5-2
IOM Options, 5-5
IOM Physical Organization, 5-3

K

Keyboard, 1-5

M

maintenance display terminal, 3-11
Memory Packages, 6-15
Memory Packages, ES2024R Servers, 6-30
Memory Packages, ES5044R Servers, 6-37
Memory Packages, ES5085R Servers, 6-23
Memory Packages, VX1305 Servers, 6-7
Memory Slot Locations, 3-9
models defined
 single processor, single domain, 2-2
mouse, 1-5
MSA104 Style Memory, 3-4
MSK208 Style Memory, 3-5
MSK412 Style Memory, 3-7
multi-chip packaging, 1-2

N

NX5620 Upgrade Diagram, 2-30
NX5820 Companion Package Style, 2-11
NX5820 Expansion Sections, 1-5
NX5820 K Processor Package Style, 2-23
NX5820 K Product Configurations, 2-15
NX5820 K Products, 2-12
NX5820 K System Upgrades, 2-29

NX5820 Memory, 3-1
 NX5820 Product Configurations, 2-3
 NX5820 Products, 2-1
 NX5820 System Upgrades, 2-26

O

operator display terminal (ODT), 3-11
 operator display workstation (ODW), 3-11
 Operator Work Space, 3-14
 Optional User Access Components, 6-8, 6-17
 Other I/O Devices, 1-6

P

PCITHRU Feature Card, 5-15
 performance and reliability, 1-2
 peripheral support, 1-6
 Power Layout and Requirements, 2-25
 Processor Board, 6-15
 Processors, ES5085R Servers, 6-23

Q

QIC tape
 configuration guidelines reference, 5-17

R

Rack-Mounted Devices, 1-5
 Redundant Power for the NX5820, 3-14
 Redundant Power/Cooling, 2-25
 RM5-CA4 and RM5-CA5 style channel
 racks, 4-4

S

SCP to UPS Status Cable, 6-55
 SDSP to DDDP upgrades, 2-26, 2-31
 SDSP to SDSP upgrades, 2-26
 server
 system hardware overview, 1-4
 Server Components, 6-5, 6-12
 Single Domain, 1-3
 Single Monolithic Partition, 1-3

Standalone (PRC1000i) UPS to SCP
 Cabling, 6-55
 Status Selection Between SCP's and
 Servers, 6-52
 Styles Offered, 5-7
 supported peripherals and DLPs, 1-6
 SVGA monitor, 1-4, 1-5
 system
 cooling, 1-2
 maintenance, 1-2
 partitioning, 1-3
 peripheral support, 1-6
 power, 1-2
 system architecture, 1-2
 System Cabinet, 1-4
 System Cabinet Organization, 1-6
 system components, 1-6

T

Technology Enhancements, 1-2
 Two Separate Partitions, 1-3

U

Uninterruptible Power Supply (UPS), 6-50
 Upgrade Options Summary, 2-31
 Upgrades
 DDDP systems, 2-31
 DDDP to DDMP, 2-31
 DDMP systems, 2-31
 SDSP model systems, 2-31
 SDSP to DDDP, 2-31
 UPS Jumper Cables, 6-50
 UPS Options, 6-50
 UPS Status Cable Connections, 6-53

V

VX1305 based server
 configuration guidelines, 6-9
 VX1305 Basic Features, 6-2
 VX1305 Servers, 6-2
 VX1305 Single-Server to Multi-Server
 Upgrades, 6-8
 VX1305-BSE/-BSU Basic Components, 6-6
 VX1505 based server
 configuration guidelines, 6-18
 VX1505 Basic Features, 6-10

Index

- VX1505 Servers, 6-10
- VX1505 Single-Server to Multi-Server
Upgrades, 6-17
- VX1505-BSE Processor Requirements., 6-12
- VX4000-CP3 Optional User Access
Components, ES2024R Servers, 6-32
- VX4000-CP3 Optional User Access
Components, ES5044R Servers, 6-39
- VX4000-CP3 Optional User Access
Components, ES5085R Servers, 6-25
- VX4000-CP3 Optional User Access
Components, VX1305 Servers, 6-8



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