sun microsystems

Cardcage Slot Assignments and Backplane Configuration Procedures

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CAUTION

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

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Preface

This manual is intended to help you position the board you have purchased from Sun into its proper slot position for your Sun workstation, whether you purchase the board with the system or as an option or upgrade.

Subjects that are not directly related to the assignment of the board into a particular system, such as how to access the backplane, configure the board, or install the board and so on, are covered in the installation and configuration manuals that come with your board and logic enclosure.

Summary of Contents

The contents of this manual are organized by product family: Sun-4, Sun-3, and Sun-2.

Chapter 1 — *Sun-4 Product Family* — covers the systems based on the SPARC architecture.

Chapter 2 — *Sun-3/100 Product Family* — covers the systems based on the Motorola 16.67 MHz 68020 processor.

Chapter 3 — *Sun-3/200 Product Family* — covers the systems based on the Motorola 25 MHz 68020 processor.

Chapter 4 — *Sun-2 Product Family* — covers the systems based on the Motorola 10 MHz 68010 processor.

Appendix A — *Rules and Caution for the ALM-2, MCP, and Channel Adapter* — describes the rules and cautions for placing these three board assemblies in specific logic enclosures.

Appendix B — *How to Read the Cardcage Slot Assignment and Backplane Configuration Tables* — provides a step-by-step example of how to use the tables.

CAUTION

Springfingers are metal strips that are installed between the edge of the PC board and the outer panel to reduce RFI emissions. Serrated metal "fingers" protrude from either side of the strip.

Installation of a board WITHOUT springfingers may affect RFI emissions and may therefore affect FCC compliance. Sun will no longer be responsible for FCC compliance if non-springfingered boards are added to a system originally shipped WITH springfingers and FCC approval.

If a board WITH springfingers is installed next to a board WITHOUT springfingers, the insulator shield on the outside of the fingers MUST be present to prevent possible shorting of component leads to the springfingers.

If a logic enclosure contains boards WITH and WITHOUT springfingers, use the following guidelines:

- Before removing a board WITHOUT springfingers, remove the board to the left of it (or below it for desktop models) if that board is equipped WITH springfingers and an outer insulator shield.
- To replace any filler panel equipped WITH springfingers, pull out the air restrictor panel far enough to allow the springfingers to lay against the panel. Push both units into place simultaneously and fasten with the appropriate fasteners. This procedure makes replacement of the filler panels easier and reduces the chance of damage to the springfingers.
- Always install a board WITHOUT springfingers first, and then replace the board WITH springfingers and insulator shield in the slot to the left of it (or below it).

If a board WITH springfingers is installed next to a board or filler panel also equipped WITH springfingers, the outside insulator shields should be removed.

Ensure that the insulator strip between the inner side of the springfingers and the PC board is intact at all times.

When removing and replacing boards with springfingers, check the condition of the insulator strip/shield(s) and replace if damaged.

Printed circuit boards contain components sensitive to damage from electrostatic discharge that may occur, for example, when you walk across a carpet and then touch the board. If a grounding device is available, wear it when handling the board. Otherwise, place your hand on a conductive surface that is grounded to a common earth ground (such as the metal screw or plate on the AC wall receptacle), to discharge any static electricity from your body before handling the board.

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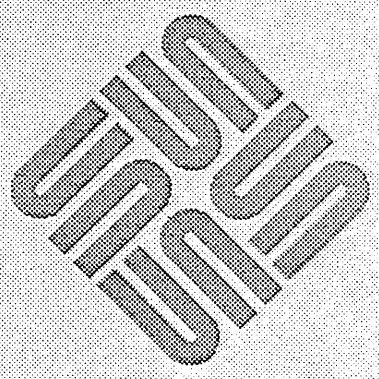
Sun-4 Product Family



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Sun-4 Product Family

1.1. Sun-4/110X

Table 1-1 *Sun-4/110X*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*		
BG3	IACK				
PX03	PX04		1	2	# 3
OUT	OUT	Sun 4100 CPU Board†**	A	**	
OUT	OUT	501-1221 MCP *∞			A
OUT	OUT	501-1203 Sun ALM-2 ∞			A
IN	OUT	Sun VME Color Bd. †∇			A
OUT	OUT	501-1153 2nd Eth Ctlr ∈			A
IN	OUT	501-1125 Sun IPC *			A

GENERAL NOTES:

This table vertically lists PCB slot priority assignments for the Sun-4/110C/110LC/110G in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred location for the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

1. Slot numbers are stamped into the cardcage sheet metal near the left (top for deskside models) card ejectors.
2. FOR ALL SLOTS: Install backplane jumpers in locations PX00, PX01 and PX02."X" represents the slot number.
3. TO INSTALL ANY BOARD: Configure backplane jumpers PX03 and PX04 per the above table. "X" represents the slot number.

4. TO REMOVE ANY BOARD: Install for the affected slot: backplane jumpers at PX03 and PX04, and remove the air flow restrictor from the slot if present.

These notes refer to symbols, such as "†" or "‡", on the slot assignment table for the Sun-4/110.

∞ **Important Note about ALM and MCP products:**

If you are using the ALM-2 with the MCP please see Appendix A, *Notes Regarding the ALM-2 and MCP Products.*

\# For Slot 3: If you wish to install a "VME-to-Multibus Adapter Board" based product (such as the 2nd Ethernet), you MUST use adapter board subassembly revision 501-1054, revision A or later to avoid signal contention on the "P2 Memory" bus.

* Consult your Sun sales office concerning software considerations for and availability of this unbundled product.

** **Since the Sun 4100 board set uses two slot spaces, to install it, you must:**

1. Remove any board already residing in slot 2 and install jumpers in locations P203 and P204 on the backplane.
2. Remove any outside filler panel covering slot 2.
3. Remove any air restrictor installed in slot 2.

The second cardcage slot is used by the CPU to physically accommodate the P4 class of options. Please contact your local sales office for a list of available options. Refer to the option's installation manual for specific connectivity issues.

∈ The "2nd Eth Ctlr" board is the interface for the second Ethernet network. The interface for the first Ethernet network resides on the CPU board.

∇ The CG5 Color Board must have its private P2 bus disabled whenever it is installed. Refer to *Configuration Procedures for the GP2 and CG5 Boards*, P/N 813-2059.

† These boards have one of the following descriptions:

501-1237 Sun-4/100 CPU with FPU
501-1199 Sun-4/100 CPU without FPU

501-1116 Sun-3 (CG3) Color
501-1267 Sun CG5 Color

1.2. Sun-4/260X

Table 1-2 *Sun-4/260X*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
P X 0 3	P X. 0 4		1	# 2	# 3	# 4	# 5	6	7	8	9	# 10	# 11	# 12
OUT	OUT	Sun 501-1274 CPU Board	A											
IN	IN	1st Sun Memory Board@†						A						
IN	IN	2nd Sun Memory Board@†					A							
IN	IN	3rd Sun Memory Board@†				A								
IN	IN	4th Sun Memory Board@†			A									
OUT	OUT	Sun GP †∇										A		
IN	IN	501-1058 Sun GB #											A	
IN	IN	501-1383 TAAC-1 ‡										A	‡	‡
OUT	N/A**	501-1157 Sun ALM-1 ** #											**	A
OUT	OUT	Sun VME SCSI Board†							A					
OUT	OUT	1st 501-1158 Sun SCP*#		D	A	B	C		E	F				
OUT	OUT	2nd 501-1158 Sun SCP*#		C		A	B		D	E	F			
OUT	OUT	1st 501-1221 Sun MCP *∞		A	B	C	D		E	F	G	H	I	J
OUT	OUT	2nd 501-1221 Sun MCP *∞			A	B	C		D	E	F	G	H	I
OUT	OUT	3rd 501-1221 Sun MCP *∞				A	B		C	D	E	F	G	H
OUT	OUT	4th 501-1221 Sun MCP *∞					A		B	C	D	E	F	G
OUT	OUT	1st 501-1203 ALM-2 ∞		A	B	C	D		E	F	G	H	I	J
OUT	OUT	2nd 501-1203 ALM-2 ∞			A	B	C		D	E	F	G	H	I
OUT	OUT	3rd 501-1203 ALM-2 ∞				A	B		C	D	E	F	G	H
OUT	OUT	4th 501-1203 ALM-2 ∞					A		B	C	D	E	F	G
OUT	OUT	1st 370-1128 SunLink Channel Adapter *∂		A	A B	C B	C		D	D E	F E	F G	H G	H
OUT	OUT	2nd 370-1128 SunLink Channel Adapter *∂				A	A		B	B C	D C	D E	F E	F
§	§	1st 501-1202 MAPKIT§*		A	A B	C B	C		D	D E	F E	F G	H G	H
§	§	2nd 501-1202 MAPKIT§*				A	A		B	B C	D C	D E	F E	F
OUT	OUT	501-1153 2nd Ethr Ctlr ∈ #		D	A	B	C		E	F	G	H	I	J

Table 1-2 *Sun-4/260X— Continued*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
PX03	PX04		1	#2	#3	#4	#5	6	#7	#8	#9	#10	#11	#12
IN	OUT	1st 501-1125 Sun IPC*		D	A	B	C		E	F	G	H	I	J
IN	OUT	2nd 501-1125 Sun IPC*		C		A	B		D	E	F	G	H	I
IN	OUT	3rd 501-1125 Sun IPC*		B			A		C	D	E	F	G	H
IN	OUT	4th 501-1125 Sun IPC*		A					B	C	D	E	F	G
OUT	OUT	1st 501-1155 Xy472 1/2" Tape CtlrΨ							A	B	C	D	E	F
OUT	OUT	2nd 501-1155 Xy472 1/2" Tape CtlrΨ								A	B	C	D	E
OUT	OUT	1st SMD Ctlr†#&							A	B	C	D	E	F
OUT	OUT	2nd SMD Ctlr†#&								A	B	C	D	E
IN	OUT	Sun VME Color †∇		J	A	B	C		D	E	F	G	H	I

FOR SYSTEMS WITHOUT A SUN SCSI OPTION:

If your system DOES NOT have SCSI Adapter, please use Table 1-3 — *Sun-4/280S Using the External SCSI Bus Sun-3 501-1191 VME Adapter*.

GENERAL NOTES: This table vertically lists PCB slot priority assignments for the Sun-4/260C/260HM/260G/260S in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred location for the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

1. The order of the cardcage slots for the 12-slot deskside pedestal is slot 1 is left-most and slot 12 is right-most when viewing the pedestal from the side where the boards are installed/removed from the cardcage.
2. FOR ALL SLOTS: Install backplane jumpers in locations PX00, PX01 and PX02."X" represents the slot number.
3. TO INSTALL ANY BOARD: Configure backplane jumpers PX03 and PX04 per the above table. "X" represents the slot number.
4. TO REMOVE ANY BOARD: Install for the affected slot: backplane jumpers at locations PX03 and PX04, outside filler panel and air flow restricter. P1204 for Slot 12 does not physically exist on the backplane.
5. DO NOT INSTALL an air restrictor in Slot 2 when a board is not installed there.
6. The Sun 3X2 VME Adapter Boards for the Sun SCSI Controller are not architecture-dependent. They have the following descriptions:

- Part number 501-1170 includes the 501-1191 Sun-3 3X2 VME Adapter board and the 501-1236 SCSI-3 Host Adapter board for the 12-slot pedestal. Part number 501-1170 is available for Sun-3 and Sun-4 systems.
- Part number 501-1149 includes the 501-1059 Sun-2 3X2 VME Adapter board and the 501-1045 SCSI-2 Host Adapter board for the 12-slot pedestal. Part number 501-1049 is a valid alternative when transferred from another system, but is not available when ordering new Sun-4 systems.

7. NON-MEMORY BOARD OPTIONS THAT MAY INSTALL INTO SLOT 2: For slots 2 through 5, non-memory board options should not be loaded using the standard left to right sequence. Keeping slot 2 empty until absolutely necessary to fill it assists with the cooling of the Sun-4/260 CPU board. However, slot 2 of the card-cage must be populated with a board when
   - all 12 slots are used, OR
   - throughput functionality of a board option is affected due to a different option board, which appears lower on the table list, is loaded into slot 2, OR
   - throughput functionality of a board option is affected by the board being placed to the right of the fixed-position Sun VME SCSI Controller.

   In these cases, the board installed into slot 2 must be the first board that would otherwise go into the first open slot to the right of slot 2.

These notes refer to symbols, such as "†" or "‡", on the slot assignment table for the Sun-4/260C/260HM/260G/260S.

∞ **Important Notes about ALM and MCP products:**

1. Because of the release of the Sun-ALM-2, references to Sun's previously released product, known only as the ALM, have now been changed. The ALM will now be referred to as the Sun-ALM-1.
2. If you are using the ALM-2 with the MCP or ALM-1, please see Appendix A, *Notes Regarding the ALM-2 and MCP Products.*

∂ **Important Cautions about the SunLink Channel Adapter:**

1. Each Channel Adapter assembly occupies two slots. The **BG3** and **IACK** backplane jumpers *must* be removed for *both slots.*
2. If after selecting a slot for the Channel Adapter assembly an unused slot exists between the CPU (Slot 1) and the Adapter, neither a 1/2 inch Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the Channel Adapter's data throughput rate may be affected.

@ **For Sun Memory Boards:**

1. For SLOT 6: A Memory Board must ALWAYS reside in Slot 6, and it MUST have 220/270Ω Terminating Resistor Network, Sun P/N 120-1613, installed for P2 bus termination at location 34-F for the 501-1102 8MB Memory Board or at location 54-F for the 501-1254 32MB Memory Board.
2. FOR MEMORY BOARD INSTALLATION IN SLOTS 3,4, or 5: Remove the Terminating Resistor Network from location 34-F for the 501-1102 8MB Memory Board, or from location 54-F for the 501-1254 32MB Memory Board.

* Consult your Sun sales office concerning software considerations for and availability of this unbundled product.

∈ The "2nd Ethr Ctlr" board is the interface for the second Ethernet network. The interface for the first network resides on the CPU board.

§ **Notes about the MAPKIT option:**

1. Each MAPKIT option occupies two slots. The "BG3" and "IACK" jumpers on the backplane are OUT for the slot that contains the MAPKIT board nearest slot 1 (far left when facing system rear) and are IN for the other slot.
2. If after selecting a slot for the MAPKIT option an unused slot exists between the CPU (slot 1) and the MAPKIT, neither a 1/2" Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the MAPKIT's throughput rate may be affected.

∇ **When installing the 501-1268 Graphics Processor 2 (GP2):** The Graphics Processor 2 will not function when the following options are installed.

501-1058 Graphics Buffer
501-1116 Sun-3 Color Board (CG3)
501-1014 Sun-2 Color Board

∇ **When installing the 501-1267 Sun VME Color Board (CG5) *with* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The Graphics Processor 2 (GP2) communicates with the CG5 over a private P2 bus which MUST BE ENABLED on the CG5 board by a hardware switch setting. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.
2. The CG5 board can only be installed in slots 11(A) and 12(B) where (A) and (B) denote slot priority. (A) denotes the highest priority and (B) denotes the next highest priority.
3. Since the 501-1157 Sun ALM-1 consumes two slot spaces (slots 11 and 12), it cannot be used with any multiple board graphics options.

∇ **When installing the 501-1267 Sun VME Color Board (CG5) *without* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The 501-1267 CG5 Color Board may be used in place of the 501-1116 Sun-3 CG3 Color Board. If you are installing the CG5 Board with either the 501-1055 Graphics Processor or the 501-1139 Graphics Processor Plus, the CG5 MUST BE installed in slots 2-9 only.
2. The CG5 board MUST HAVE its private P2 bus disabled when the 501-1268 Graphics Processor 2 (GP2) is **not** installed. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.

& Both the 501-1154 Xylogics 450 SMD Controller and the 501-1055 Graphics Processor are valid alternatives when transferred from another system. However, the Xylogics 450-based products and the 501-1055 Graphics Processor board are not available when ordering new Sun-4/200 Series systems. Instead, the Xylogics 451 products and the GP Plus are available with Sun-4/200 Series systems.

Ψ The 501-1156 CPC Tape Controller is not supported in the Sun-4 architecture. The Xy472 (Xylogics 472) 1/2" Tape Controller provides interface support of the CDC Keystone 1/2" Tape Drive (only for file generation and back-up) when a user's system is upgraded to a Sun-4/200 CPU. Contact your local Sun sales office for further information.

** **Since the 501-1157 Sun ALM-1 consumes two slot spaces, TO INSTALL IT, YOU MUST:**

1. REMOVE any board already residing in slot 11 and install jumpers at locations P1103 and P1104 on the backplane;

2. REMOVE any outside filler panel(s) covering slots 11 and 12;
3. REMOVE any air restrictors installed in these slots.

‡ Since the 501-1383 TAAC-1 consumes three slot spaces, TO INSTALL IT, YOU MUST REMOVE any boards already residing in slots 10, 11,and 12, and install jumpers at locations P1103, P1104, and P1203 on the backplane.

Notes about installing a VME-to-Multibus Adapter Board based product:

1. FOR SLOTS 2 THROUGH 5: If you wish to install a "VME-to-Multibus Adapter Board" based product (such as the SCP), you MUST USE adapter board subassembly Revision 501-1054-04, Rev A or later to avoid signal contention on the "P2 Memory" bus.
2. FOR SLOTS 11 AND 12: If any combination of GP and GB boards are installed in slots 10 and 11 and you wish to install a "VME to Multibus Adapter Board" based product, you MUST USE Adapter board subassembly revision 501-1054-04 REV A or later to avoid signal contention on the "GP/GB" bus.

† These boards have one of the following descriptions:

501-1102 8MB Memory Board
501-1254 32MB Memory Board

501-1055 Graphics Processor
501-1139 Graphics Processor Plus
501-1268 Graphics Processor 2

501-1116 Sun-3 (CG3) Color
501-1267 Sun CG5 Color

501-1149 Sun-2 SCSI Ctlr.
501-1170 Sun-3 SCSI Ctlr.

501-1154 Xylogics 450 SMD Ctlr.
501-1166 Xylogics 451 SMD Ctlr.

1.3. Sun-4/280S Using the External SCSI Bus Sun-3 501-1191 SCSI VME Adapter

Table 1-3 *Sun-4/280S Using the External SCSI Bus Sun-3 501-1191 VME Adapter*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
P X 0 3	P X 0 4		1	# 2	# 3	# 4	# 5	6	7	8	9	# 10	# 11	# 12
OUT	OUT	Sun 501-1274 CPU Board∇	A											
IN	IN	1st Sun Memory Board@						A						
IN	IN	2nd Sun Memory Board@		A										
IN	IN	3rd Sun Memory Board@			A									
IN	IN	4th Sun Memory Board@				A								
OUT	OUT	Sun GP †∇										A		
IN	IN	501-1058 Sun GB #											A	
IN	IN	501-1383 TAAC-1 ‡										A	‡	‡
OUT	N/A	1st 501-1165 Sun ALM-1**#∞												A
OUT	OUT	2nd 501-1165 Sun ALM-1**#∞											A	
OUT	OUT	3rd 501-1165 Sun ALM-1**#∞										A		
OUT	OUT	1st 501-1158 Sun SCP*#		A	B	C	D		E					
OUT	OUT	2nd 501-1158 Sun SCP*#			A	B	C		D	E				
OUT	OUT	1st 501-1221 Sun MCP *∞		A	B	C	D		E	F	G	H	I	J
OUT	OUT	2nd 501-1221 Sun MCP *∞			A	B	C		D	E	F	G	H	I
OUT	OUT	3rd 501-1221 Sun MCP *∞				A	B		C	D	E	F	G	H
OUT	OUT	4th 501-1221 Sun MCP *∞					A		B	C	D	E	F	G
OUT	OUT	1st 501-1203 ALM-2 ∞		A	B	C	D		E	F	G	H	I	J
OUT	OUT	2nd 501-1203 ALM-2 ∞			A	B	C		D	E	F	G	H	I
OUT	OUT	3rd 501-1203 ALM-2 ∞				A	B		C	D	E	F	G	H
OUT	OUT	4th 501-1203 ALM-2 ∞					A		B	C	D	E	F	G
OUT	OUT	1st 370-1128 SunLink Channel Adapter *∂		A	A B	C B	C		D	D E	F E	F G	H G	H
OUT	OUT	2nd 370-1128 SunLink Channel Adapter *∂				A	A		B	B E	D E	D G	F G	F
§	§	1st 501-1202 MAPKIT§*		A	A	C	C		D	D	F	F	G	G

Table 1-3 *Sun-4/280S Using the External SCSI Bus Sun-3 501-1191 VME Adapter— Continued*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
PX03	PX04		1	#2	#3	#4	#5	6	7	8	9	#10	#11	#12
				·	B	B				E	E			
§	§	2nd 501-1202 MAPKIT§*				A	A		B	B	D	D	F	F
§	§	2nd 501-1202 MAPKIT, cont.§*										C	C	E
OUT	OUT	Sun VME SCSI Ctlr †		A	B	C	D		E	F	G	H	I	J
IN	OUT	Sun VME Color †∇		A	B	C	D		E	F	G	H	I	J
OUT	OUT	501-1153 2nd Ethr Ctlr ∈#		A	B	C	D		E	F	G	H	I	J
IN	OUT	1st 501-1125 Sun IPC*		D	E	F	G		A	B	C	H	I	J
IN	OUT	2nd 501-1125 Sun IPC*		C	D	E	F			A	B	G	H	I
IN	OUT	3rd 501-1125 Sun IPC*		B	C	D	E				A	F	G	H
IN	OUT	4th 501-1125 Sun IPC*		A	B	C	D					E	F	G
OUT	OUT	1st 501-1155 Xy472 1/2" Tape CtlrΨ		A	B	C	D		E	F	G	H	I	J
OUT	OUT	2nd 501-1155 Xy472 1/2" Tape CtlrΨ			A	B	C		D	E	F	G	H	I
OUT	OUT	1st SMD Ctlr#†&		A	B	C	D		E	F	G	H	I	J
OUT	OUT	2nd SMD Ctlr#†&			A	B	C		D	E	F	G	H	I

FOR SYSTEMS WITHOUT A SUN SCSI OPTION: If your system DOES NOT have SCSI Adapter, please use this table.

GENERAL NOTES:

This table vertically lists PCB slot priority assignments for the Sun-4/280S (with Sun-3 3X2 Adapter 501-1191) in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred locationfor the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

1. Slot numbers are labeled on the cardcage sheet metal near the top card ejectors.
2. FOR ALL SLOTS: Install backplane jumpers in locations PX00, PX01 and PX02."X" represents the slot number.
3. TO INSTALL ANY BOARD: Configure backplane jumpers PX03 and PX04 per the above table. "X" represents the slot number.
4. TO REMOVE ANY BOARD: Install for the affected slot: backplane jumpers at locations PX03 and PX04, outside filler panel and air flow restricter. P1204 for Slot 12 does not physically exist on the backplane.

5. The Sun 3X2 VME Adapter Boards for the Sun SCSI Controller are not architecture-dependent. They have the following descriptions:
   - 501-1059 Sun-2 3X2 Adapter has P2 bus connections. It is Option 160A in the Sun sales catalog.
   - 501-1191 Sun-3 3X2 Adapter does not have P2 bus connections. It is Option 160B in the Sun sales catalog.

These notes refer to symbols, such as "†" or "‡", on the slot assignment table for the Sun-4/280S with 501-1191 Adapter.

∞ **Important Notes about ALM and MCP products:**

1. Because of the release of the Sun-ALM-2, references to Sun's previously released product, known only as the ALM, have now been changed. The ALM will now be referred to as the Sun-ALM-1.
2. If you are using the ALM-2 with the MCP or ALM-1, please see Appendix A, *Notes Regarding the ALM-2 and MCP Products.*

∂ **Important Cautions about the SunLink Channel Adapter:**

1. Each Channel Adapter assembly occupies two slots. The **BG3** and **IACK** backplane jumpers *must* be removed for *both* slots.
2. If after selecting a slot for the Channel Adapter assembly an unused slot exists between the CPU (Slot 1) and the Adapter, neither a 1/2 inch Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the Channel Adapter's data throughput rate may be affected.

@ **For Sun Memory Boards:**

1. For SLOT 6: A Memory Board must ALWAYS reside in Slot 6, and it MUST have 220/270Ω Terminating Resistor Network, Sun P/N 120-1613, installed for P2 bus termination at location 34-F for the 501-1102 8MB Memory Board or at location 54-F for the 501-1254 32MB Memory Board.
2. FOR MEMORY BOARD INSTALLATION IN SLOTS 3,4, or 5: Remove the Terminating Resistor Network from location 34-F for the 501-1102 8MB Memory Board, or from location 54-F for the 501-1254 32MB Memory Board.

Notes about installing a VME-to-Multibus Adapter Board based product:

1. FOR SLOTS 2 THROUGH 5: If you wish to install a "VME-to-Multibus Adapter Board" based product (such as the SCP), you MUST USE adapter board subassembly Revision 501-1054-04, Rev A or later to avoid signal contention on the "P2 Memory" bus.
2. FOR SLOTS 11 AND 12: If any combination of GP and GB boards are installed in slots 10 and 11 and you wish to install a "VME to Multibus Adapter Board" based product, you MUST USE Adapter board subassembly revision 501-1054-04 REV A or later to avoid signal contention on the "GP/GB" bus.

* Consult your Sun sales office concerning software considerations for and availability of this unbundled product.

‡ Since the 501-1383 TAAC-1 consumes three slot spaces, TO INSTALL IT, YOU MUST REMOVE any boards already residing in slots 10, 11, and 12 and install jumpers at locations P1103, P1104, and P1203 on the backplane.

∈ The "2nd Ethr Ctlr" board is the interface for the second Ethernet network. The interface for the first network resides on the CPU board.

§ **Notes about the MAPKIT option:**

1. Each MAPKIT option occupies two slots. The "BG3" and "IACK" jumpers on the backplane are OUT for the slot that contains the MAPKIT board nearest slot 1 (far left when facing system rear) and are IN for the other slot.

2. If after selecting a slot for the MAPKIT option an unused slot exists between the CPU (slot 1) and the MAPKIT, neither a 1/2" Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the MAPKIT's throughput rate may be affected.

∇ **When installing the 501-1268 Graphics Processor 2 (GP2):** The Graphics Processor 2 will not function when the following options are installed.

501-1058 Graphics Buffer
501-1116 Sun-3 Color Board (CG3)
501-1014 Sun-2 Color Board

∇ **When installing the 501-1267 Sun VME Color Board (CG5) *with* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The Graphics Processor 2 (GP2) communicates with the CG5 over a private P2 bus which MUST BE ENABLED on the CG5 board by a hardware switch setting. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.

2. The CG5 board can only be installed in slots 11(A) and 12(B) where (A) and (B) denote slot priority. (A) denotes the highest priority and (B) denotes the next highest priority.

∇ **When installing the 501-1267 Sun VME Color Board (CG5) *without* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. If you are installing the CG5 board with either the 501-1055 Graphics Processor or the 501-1268 Graphics Processor Plus, the CG5 board MUST BE installed in slots 2-9 only.

2. The CG5 board MUST HAVE its private P2 bus disabled when the 501-1268 Graphics Processor 2 (GP2) is not installed. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.

& Both the 501-1154 Xylogics 450 SMD Controller and the 501-1055 Graphics Processor are valid alternatives when transferred from another system. However, the Xylogics 450-based products and the 501-1055 Graphics Processor board are not available when ordering new Sun-4/200 Series products. Instead, the Xylogics 451 products and the GP Plus are available with Sun-4/200 Series systems.

Ψ The 501-1156 CPC Tape Controller is not supported in the Sun-4 architecture. The Xy472 (Xylogics 472) 1/2" Tape Controller provides interface support of the CDC Keystone 1/2" Tape Drive (only for file generation and back-up) when a user's system is upgraded to a Sun-4/200 CPU. Contact your local Sun sales office for further information.

† These boards have one of the following descriptions:

501-1102 8MB Memory Board
501-1254 32MB Memory Board

501-1055 Graphics Processor
501-1139 Graphics Processor Plus
501-1268 Graphics Processor 2

501-1138 Sun-2 SCSI Ctlr.
501-1217 Sun-3 SCSI Ctlr.

501-1154 Xylogics 450 SMD Ctlr.
501-1166 Xylogics 451 SMD Ctlr.

501-1116 Sun-3 (CG3) Color
501-1267 Sun CG5 Color

1.4. Sun-4/280S Using the Sun-2 501-1167 SCSI Host Adapter

Table 1-4 *Sun-4/280S Using the Sun-2 501-1167 SCSI Host Adapter*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
PX03	PX04		1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
OUT	OUT	Sun 501-1274 CPU Board	A											
IN	IN	1st Sun Memory Board@†						A						
IN	IN	2nd Sun Memory Board@†		A										
IN	IN	3rd Sun Memory Board@†			A									
IN	IN	4th Sun Memory Board@†				A								
OUT	OUT	Sun GP †∇										A		
IN	IN	501-1058 Sun GB #											A	
IN	IN	501-1383 TAAC-1 ‡										A	‡	‡
OUT	N/A	1st 501-1165 Sun ALM-1**#												A
OUT	OUT	2nd 501-1165 Sun ALM-1**#											A	
OUT	OUT	3rd 501-1165 Sun ALM-1**#										A		
OUT	OUT	501-1167 Sun-2 VME SCSI Ctlr ++							A					
OUT	OUT	1st 501-1158 Sun SCP*#		A	B	C	D			E				
OUT	OUT	2nd 501-1158 Sun SCP*#			A	B	C			D	E			
OUT	OUT	1st 501-1221 MCP Board *∞		A	B	C	D			E	F	G	H	I
OUT	OUT	2nd 501-1221 MCP Board *∞			A	B	C			D	E	F	G	H
OUT	OUT	3rd 501-1221 MCP Board *∞				A	B			C	D	E	F	G
OUT	OUT	4th 501-1221 MCP Board *∞					A			B	C	D	E	F
OUT	OUT	1st 501-1203 ALM-2 Board ∞		A	B	C	D			E	F	G	H	I
OUT	OUT	2nd 501-1203 ALM-2 Board ∞			A	B	C			D	E	F	G	H
OUT	OUT	3rd 501-1203 ALM-2 Board ∞				A	B			C	D	E	F	G
OUT	OUT	4th 501-1203 ALM-2 Board ∞					A			B	C	D	E	F
OUT	OUT	1st 370-1128 SunLink Channel Adapter *∂		A	A B	C B	C			D	D E	F E	F G	G
OUT	OUT	2nd 370-1128 SunLink Channel Adapter *∂				A	A			B	B	C	C D	D
§	§	1st 501-1202 MAPKIT§*		A	A	C	C			D	D	F	F	

Table 1-4 *Sun-4/280S Using the Sun-2 501-1167 SCSI Host Adapter— Continued*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
PX03	PX04		1	#2	#3	#4	#5	6	7	8	9	#10	#11	#12
					B	B					E	E	G	G
§	§	2nd 501-1202 MAPKIT§*				A	A			B	B	C	C D	D
IN	OUT	Sun Color†∇		A	B	C	D			E	F	G	H	I
OUT	OUT	501-1153 2nd Ethr Ctlr ∈#		A	B	C	D			E	F	G	H	I
IN	OUT	1st 501-1125 Sun IPC*		A	B	C	D			E	F	G	H	I
IN	OUT	2nd 501-1125 Sun IPC*			A	B	C			D	E	F	G	H
IN	OUT	3rd 501-1125 Sun IPC*				A	B			C	D	E	F	G
IN	OUT	4th 501-1125 Sun IPC*					A			B	C	D	E	F
OUT	OUT	1st 501-1155 Xy472 1/2" Tape CtlrΨ								A	B	C	D	E
OUT	OUT	2nd 501-1155 Xy472 1/2" Tape CtlrΨ									A	B	C	D
OUT	OUT	1st SMD Ctlr#&†								A	B	C	D	E
OUT	OUT	2nd SMD Ctlr#&†									A	B	C	D

GENERAL BOARD INSTALLATION NOTES:

This table vertically lists PCB slot priority assignments for the Sun-4/280S, with the Sun-2 501-1059 Adapter, in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred location for the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

1. Slot numbers are labeled on the cardcage sheet metal near the top cardcage ejectors.
2. FOR ALL SLOTS: Install backplane jumpers in locations PX00, PX01 and PX02."X" represents the slot number.
3. TO INSTALL ANY BOARD: Configure backplane jumpers PX03 and PX04 per the above table. "X" represents the slot number.
4. TO REMOVE ANY BOARD: Install for the affected slot: backplane jumpers at locations PX03 and PX04, outside filler panel and air flow restricter. P1204 for Slot 12 does not physically exist on the backplane.
5. The Sun 3X2 VME Adapter Boards for the Sun SCSI Controller are not architecture-dependent. The Adapters have the following descriptions:

- 501-1059 Sun-2 3X2 Adapter has P2 bus connections. It is Option 160A in the Sun sales catalog.
- 501-1191 Sun-3 3X2 Adapter does not have P2 bus connections. It is Option 160B in the Sun sales catalog.

These notes refer to symbols, such as "†" or "‡", on the slot assignment table for the Sun-4/280S with the 501-1059 Adapter.

++ The Adapter for the 501-1167 Sun-2 SCSI Ctlr has both P2 and external cable connections. Sun is not supporting the Sun-3 SCSI Ctlr on this type of Adapter.

∞ **Important Notes about ALM and MCP products:**

1. Because of the release of the Sun-ALM-2, references to Sun's previously released product, known only as the ALM, have now been changed. The ALM will now be referred to as the Sun-ALM-1.
2. If you are using the ALM-2 with the MCP or ALM-1, please see Appendix A, *Notes Regarding the ALM-2 and MCP Products.*

∂ **Important Cautions about the SunLink Channel Adapter:**

1. Each Channel Adapter assembly occupies two slots. The **BG3** and **IACK** backplane jumpers *must* be removed for *both* slots.
2. If after selecting a slot for the Channel Adapter assembly an unused slot exists between the CPU (Slot 1) and the Adapter, neither a 1/2 inch Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the Channel Adapter's data throughput rate may be affected.

@ **For Sun Memory Boards:**

1. FOR SLOT 6: A Memory Board must ALWAYS reside in Slot 6, and it MUST have 220/270 Ω Terminating Resistor Network, Sun P/N 120-1613, installed for P2 bus termination at location 34-F for the 501-1102 8MB Memory Board or at location 54-F for the 501-1254 32MB Memory Board.
2. FOR MEMORY BOARD INSTALLATION IN SLOTS 2,3, or 4: Remove the Terminating Resistor Network from location 34-F for the 501-1102 8MB Memory Board, or from location 54-F for the 501-1254 32MB Memory Board.

* Consult your Sun sales office concerning software considerations for and availability of this unbundled product.

∈ The "2nd Ethr Ctlr" board is the interface for the second Ethernet network. The interface for the first network resides on the CPU board.

Notes about installing a VME-to-Multibus Adapter Board based product:

1. FOR SLOTS 2 THROUGH 5: If you wish to install a "VME-to-Multibus Adapter Board" based product (such as the SCP), you MUST USE adapter board subassembly Revision 501-1054-04, Rev A or later to avoid signal contention on the "P2 Memory" bus.
2. FOR SLOTS 11 AND 12: If any combination of GP and GB boards are installed in slots 10 and 11 and you wish to install a "VME to Multibus Adapter Board" based product, you MUST USE Adapter board subassembly revision 501-1054-04 REV A or later to avoid signal contention on the "GP/GB" bus.

‡ Since the 501-1383 TAAC-1 consumes three slot spaces, TO INSTALL IT, YOU MUST REMOVE any boards already residing in slots 10, 11, and 12 and install jumpers at locations P1103, P1104, and P1203 on the backplane.

§ **Notes about the MAPKIT option:**

1. Each MAPKIT option occupies two slots. The "BG3" and "IACK" jumpers on the backplane are OUT for the slot that contains the MAPKIT board nearest slot 1 (far left when facing system rear) and are IN for the other slot.
2. If after selecting a slot for the MAPKIT option an unused slot exists between the CPU (slot 1) and the MAPKIT, neither a 1/2" Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the MAPKIT's throughput rate may be affected.

∇ **When installing the 501-1268 Graphics Processor 2 (GP2):** The Graphics Processor 2 will not function when the following options are installed.

501-1058 Graphics Buffer
501-1116 Sun-3 Color Board (CG3)
501-1014 Sun-2 Color Board

∇ **When installing the 501-1267 Sun VME Color Board (CG5) *with* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The Graphics Processor 2 (GP2) communicates with the CG5 over a private P2 bus which MUST BE ENABLED on the CG5 board by a hardware switch setting. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.
2. The CG5 board can only be installed in slots 11(A) and 12(B) where (A) and (B) denote slot priority. (A) denotes the highest priority and (B) denotes the next highest priority.

∇ **When installing the 501-1267 Sun CG5 Color Board *without* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. If you are installing the CG5 board with either the 501-1055 Graphics Processor or the 501-1268 Graphics Processor Plus, the CG5 board MUST BE installed in slots 2-9 only.
2. The CG5 board MUST HAVE its private P2 bus disabled when the 501-1268 Graphics Processor 2 (GP2) is **not** installed. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.

& Both the 501-1154 Xylogics 450 SMD Controller and the 501-1055 Graphics Processors are valid alternatives when transferred from another system. However, the Xylogics 450-based products and the 501-1055 Graphics Processor board are not available when ordering new Sun-4/200 Series products. Instead, the Xylogics 451 products and the GP Plus are available with Sun-4/200 Series systems.

Ψ The 501-1156 CPC Tape Controller is not supported in the Sun-4 architecture. The Xy472 (Xylogics 472) 1/2" Tape Controller provides interface support of the CDC Keystone 1/2" Tape Drive (only for file generation and back-up) when a user's system is upgraded to a Sun-4/200 CPU. Contact your local Sun sales office for further information.

† These boards have one of the following descriptions:

501-1102 8MB Memory Board
501-1254 32MB Memory Board

501-1055 Graphics Processor
501-1139 Graphics Processor Plus
501-1268 Graphics Processor 2

501-1116 Sun-3 (CG3) Color
501-1267 Sun CG5 Color

501-1154 Xylogics 450 SMD Ctlr.
501-1166 Xylogics 451 SMD Ctlr.

1.5. Sun-4/280S with Reserved Slots and Sun-3 501-1191 SCSI VME Adapter

Table 1-5 *Sun-4/280S with Reserved Slots and Sun-3 501-1191 SCSI VME Adapter*

Note: This table reserves slots 7, 8 and 9 for non-Sun boards that use signals on the "P2" bus.

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
PX03	PX04		1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
OUT	OUT	Sun 501-1274CPU Board∇	A											
IN	IN	1st Sun Memory Board@						A						
IN	IN	2nd Sun Memory Exp@		A										
IN	IN	3rd Sun Memory Exp@			A									
IN	IN	4th Sun Memory Exp@				A								
OUT	OUT	Sun GP †∇										A		
IN	IN	501-1058 Sun GB #											A	
IN	IN	501-1383 TAAC-1 ‡										A	‡	‡
OUT	N/A	1st 501-1165 Sun ALM-1#												A
OUT	OUT	2nd 501-1165 Sun ALM-1#											A	
OUT	OUT	3rd 501-1165 Sun ALM-1#										A		
OUT	OUT	1st 501-1158 Sun SCP*#		A	B	C	D					E	F	G
OUT	OUT	2nd 501-1158 Sun SCP*#			A	B	C					D	E	F
OUT	OUT	1st 501-1221 Sun MCP *∞		A	B	C	D					E	F	G
OUT	OUT	2nd 501-1221 Sun MCP *∞			A	B	C					D	E	F
OUT	OUT	3rd 501-1221 Sun MCP *∞				A	B					C	D	E
OUT	OUT	4th 501-1221 Sun MCP *∞					A					B	C	D
OUT	OUT	1st 501-1203 ALM-2 Board ∞		A	B	C	D					E	F	G
OUT	OUT	2nd 501-1203 ALM-2 Board ∞			A	B	C					D	E	F
OUT	OUT	3rd 501-1203 ALM-2 Board ∞				A	B					C	D	E
OUT	OUT	4th 501-1203 ALM-2 Board ∞					A					B	C	D
OUT	OUT	1st 370-1128 SunLink Channel Adapter *∂		A	A B	C B	C					D	D E	E
OUT	OUT	2nd 370-1128 SunLink Channel Adapter *∂				A	A					B	B C	C
§	§	1st 501-1202 MAPKIT§*		A	A	C	C					D	D	

Table 1-5 *Sun-4/280S with Reserved Slots and Sun-3 501-1191 VME Adapter— Continued*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
PX03	PX04		1	#2	#3	#4	#5	6	7	8	9	#10	#11	#12
					B	B							E	E
§	§	2nd 501-1202 MAPKIT§*				A	A					B	B C	C
OUT	OUT	VME SCSI Ctlr†		A	B	C	D					E	F	G
IN	OUT	Sun VME Color †∇		A	B	C	D					E	F	G
OUT	OUT	501-1153 2nd Ethr Ctlr ∈#		A	B	C	D					E	F	G
IN	OUT	1st 501-1125 Sun IPC*		A	B	C	D					E	F	G
IN	OUT	2nd 501-1125 Sun IPC*			A	B	C					D	E	F
IN	OUT	3rd 501-1125 Sun IPC*				A	B					C	D	E
IN	OUT	4th 501-1125 Sun IPC*					A					B	C	D
OUT	OUT	1st 501-1155 Xy472 1/2" Tape CtlrΨ		A	B	C	D					E	F	G
OUT	OUT	2nd 501-1155 Xy472 1/2" Tape CtlrΨ			A	B	C					D	E	F
OUT	OUT	1st SMD Ctlr#†&		A	B	C	D					E	F	G
OUT	OUT	2nd SMD Ctlr#†&			A	B	C					D	E	F

GENERAL BOARD INSTALLATION NOTES:

This table vertically lists PCB slot priority assignments for the Sun-4/280S, with slots 7,8 and 9 reserved for non-Sun boards, in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred location for the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

1. Slot numbers are labeled on the cardcage sheet metal near the top cardcage ejectors.
2. FOR ALL SLOTS: Install backplane jumpers in locations PX00, PX01 and PX02."X" represents the slot number.
3. TO INSTALL ANY BOARD: Configure backplane jumpers PX03 and PX04 per the above table. "X" represents the slot number.
4. TO REMOVE ANY BOARD: Install for the affected slot: backplane jumpers at locations PX03 and PX04, outside filler panel and air flow restricter. P1204 for Slot 12 does not physically exist on the backplane.
5. The Sun 3X2 VME Adapter Boards for the Sun SCSI Controller are not architecture-dependent. They have the following descriptions:

- 501-1059 Sun-2 3X2 Adapter has P2 bus connections. It is Option 160A in the Sun sales catalog.
- 501-1191 Sun-3 3X2 Adapter does not have P2 bus connections. It is Option 160B in the Sun sales catalog.

These notes refer to symbols, such as "†" or "‡", on the slot assignment table for the Sun-4/280S with slots 7, 8, and 9 reserved for non-Sun boards.

∞ **Important Notes about ALM and MCP products:**

1. Because of the release of the Sun-ALM-2, references to Sun's previously released product, known only as the ALM, have now been changed. The ALM will now be referred to as the Sun-ALM-1.
2. If you are using the ALM-2 with the MCP or ALM-1, please see Appendix A, *Notes Regarding the ALM-2 and MCP Products.*

∂ **Important Cautions about the SunLink Channel Adapter:**

1. Each Channel Adapter assembly occupies two slots. The **BG3** and **IACK** backplane jumpers *must* be removed for *both* slots.
2. If after selecting a slot for the Channel Adapter assembly an unused slot exists between the CPU (Slot 1) and the Channel Adapter, neither a 1/2 inch Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the Channel Adapter's data throughput rate may be affected.

@ **For Sun Memory Boards:**

1. For SLOT 6: A Memory Board must ALWAYS reside in Slot 6, and it MUST have 220/270Ω Terminating Resistor Network, Sun P/N 120-1613, installed for P2 bus termination at location 34-F for the 501-1102 8MB Memory Board or at location 54-F for the 501-1254 32MB Memory Board.
2. FOR MEMORY BOARD INSTALLATION IN SLOTS 2,3, or 4: Remove the Terminating Resistor Network from location 34-F for the 501-1102 8MB Memory Board, or from location 54-F for the 501-1254 32MB Memory Board.

* Consult your Sun sales office concerning software considerations for and availability of this unbundled product.

∈ The "2nd Ethr Ctlr" board is the interface for the second Ethernet network. The interface for the first network resides on the CPU board.

Notes about installing a VME-to-Multibus Adapter Board based product:

1. FOR SLOTS 2 THROUGH 5: If you wish to install a "VME-to-Multibus Adapter Board" based product (such as the SCP), you MUST USE adapter board subassembly Revision 501-1054-04, Rev A or later to avoid signal contention on the "P2 Memory" bus.
2. FOR SLOTS 11 AND 12: If any combination of GP and GB boards are installed in slots 10 and 11 and you wish to install a "VME to Multibus Adapter Board" based product, you MUST USE Adapter board subassembly revision 501-1054-04 REV A or later to avoid signal contention on the "GP/GB" bus.

‡ Since the 501-1383 TAAC-1 consumes three slot spaces, TO INSTALL IT, YOU MUST REMOVE any boards already residing in slots 10, 11, and 12 and install jumpers at locations P1103, P1104, and P1203 on the backplane.

§ **Notes about the MAPKIT option:**

1. Each MAPKIT option occupies two slots. The "BG3" and "IACK" jumpers on the backplane are OUT for the slot that contains the MAPKIT board nearest slot 1 (far left when facing system rear) and are IN for the other slot.

2. If after selecting a slot for the MAPKIT option an unused slot exists between the CPU (slot 1) and the MAPKIT, neither a 1/2" Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the MAPKIT's throughput rate may be affected.

∇ **When installing the 501-1268 Graphics Processor 2 (GP2):** The Graphics Processor 2 will not function when the following options are installed.

501-1058 Graphics Buffer
501-1116 Sun-3 Color Board (CG3)
501-1014 Sun-2 Color Board

∇ **When installing the 501-1267 Sun VME Color Board (CG5) *with* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The Graphics Processor 2 (GP2) communicates with the CG5 over a private P2 bus which MUST BE ENABLED on the CG5 board by a hardware switch setting. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.

2. The CG5 board can only be installed in slots 11(A) and 12(B) where (A) and (B) denote slot priority. (A) denotes the highest priority and (B) denotes the next highest priority.

∇ **When installing the 501-1267 Sun VME Color Board (CG5) *without* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. If you are installing the CG5 board with either the 501-1055 Graphics Processor or the 501-1268 Graphics Processor Plus, the CG5 board MUST BE installed in slots 2-9 only.

2. The CG5 board MUST HAVE its private P2 bus disabled when the 501-1268 Graphics Processor 2 (GP2) is **not** installed. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.

& Both the 501-1154 Xylogics 450 SMD Controller and the 501-1055 Graphics Processor are valid alternatives when transferred from another system. However, the Xylogics 450-based products and the 501-1055 Graphics Processor board are not available when ordering new Sun-4/200 Series products. Instead, the Xylogics 451 products and the GP Plus are available with Sun-4/200 Series systems.

Ψ The 501-1156 CPC Tape Controller is not supported in the Sun-4 architecture. The Xy472 (Xylogics 472) 1/2" Tape Controller provides interface support of the CDC Keystone 1/2" Tape Drive (only for file generation and back-up) when a user's system is upgraded to a Sun-4/200 CPU. Contact your local Sun sales office for further information.

† These boards have one of the following descriptions:

501-1102 8MB Memory Board
501-1254 32MB Memory Board

501-1055 Graphics Processor
501-1139 Graphics Processor Plus
501-1268 Graphics Processor 2

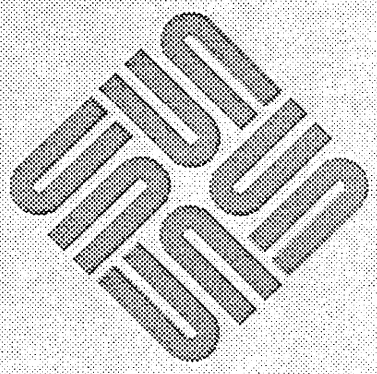
501-1116 Sun-3 (CG3) Color
501-1267 Sun CG5 Color

501-1138 Sun-2 SCSI Ctlr.
501-1217 Sun-3 SCSI Ctlr.

501-1154 Xylogics 450 SMD Ctlr.
501-1166 Xylogics 451 SMD Ctlr.

2

Sun-3/100 Product Family



2

Sun-3/100 Product Family

2.1. Sun-3/75

Table 2-1 *Sun-3/75*

BOARD NAME	*BACKPLANE SLOT POSITION*	
	1	2
Sun 3004 CPU Board†	A	
Sun Mem Exp Board†		A

GENERAL NOTES:

This table vertically lists PCB slot priority assignments for the Sun-3/75 in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred location for the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

† These boards have one of the following descriptions:

2MB 501-1163 Sun CPU
4MB 501-1164 Sun CPU

0 MB 501-1121 Sun Memory Exp. *
2 MB 501-1111 Sun Memory Exp. *
4 MB 501-1122 Sun Memory Exp. *
0 MB 501-1172 Sun Memory Exp. With Sun-2 VME SCSI Ctlr‡

* The 501-1045 Sun VME SCSI Controller may be "piggy-backed" onto 2 Mbyte or 4 Mbyte Memory Expansion boards. However, the combined parts retain their individual Sun Part Numbers.

‡ This assembly consists of the 0 Mbyte 501-1121 Memory Expansion Board and the 501-1045 Sun VME SCSI Controller. **Warning:** The Sun-3 VME SCSI Controller has not been qualified for use in the Sun-3/75.

2.2. Sun-3/110X

Table 2-2 *Sun-3/110X*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*		
BG3	IACK				
PX03	PX04		1	# 2	# 3
OUT	OUT	Sun 3100 CPU Board †	A		
IN	IN	1st 4MB 501-1132 Sun Mem Exp		A	
IN	IN	2nd 4MB 501-1132 Sun Mem Exp			A
IN	IN	501-1105 Sun FPA		A	B
OUT	OUT	1st 501-1158 Sun SCP*#		A	B
OUT	OUT	2nd 501-1158 Sun SCP*#			A
OUT	OUT	1st 501-1221 MCP Board *∞		A	B
OUT	OUT	2nd 501-1221 MCP Board *∞			A
OUT	OUT	1st 501-1203 ALM-2 Board ∞		A	B
OUT	OUT	2nd 501-1203 ALM-2 Board ∞			A
§	§	501-1202 MAPKIT§*		A	A
OUT	OUT	Sun VME SCSI Ctlr †		B	A
OUT	OUT	501-1153 2nd Ethr Ctlr ∈		B	A
IN	OUT	1st 501-1125 Sun IPC *		B	A
IN	OUT	2nd 501-1125 Sun IPC *		A	

GENERAL NOTES:

This table vertically lists PCB slot priority assignments for the Sun-3/110C/110LC/110G in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred location for the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

1. Slot numbers are labeled on the cardcage sheet metal near the left (top for deskside models) card ejectors.
2. FOR ALL SLOTS: Install backplane jumpers in locations PX00, PX01 and PX02."X" represents the slot number.
3. TO INSTALL ANY BOARD: Configure backplane jumpers PX03 and PX04 per the above table. "X" represents the slot number. Remove air restrictor from slot if present.

4. TO REMOVE ANY BOARD: Install for the affected slot: backplane jumpers at PX03 & PX04, air restrictor, and outside filler panel.

These notes refer to symbols, such as "†" or "‡", on the slot assignment table for the Sun-3/110C/110LC/110G.

∞ **Important Note about ALM and MCP products:**
If you are using the ALM-2 with the MCP, please see Appendix A, *Notes Regarding the ALM-2 and MCP Products.*

* Consult your Sun sales office concerning software considerations for and availability of this unbundled product.

\# FOR SLOTS 2 AND 3: If you wish to install a "VME-to-Multibus Adapter Board" based product (such as the SCP), you MUST USE adapter board subassembly Revision 501-1054-04, Rev A or later to avoid signal contention on the "P2 Memory" bus.

§ Each MAPKIT option occupies two slots. The "BG3" and "IACK" jumpers on the backplane are OUT for slot 2, and "BG3" is IN for slot 3.

∈ The "501-1153 2nd Ethr Ctlr" board is the interface for the second Ethernet network. The interface for the first network resides on the CPU board.

† This board may have one of the following descriptions:

501-1134 CPU Board
501-1209 CPU Board

501-1138 Sun-2 SCSI Ctlr.
501-1217 Sun-3 SCSI Ctlr.

2.3. Sun-3/140X

Table 2-3 *Sun-3/140X*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*		
BG3	IACK				
PX03	PX04		1	# 2	# 3
OUT	OUT	Sun 3004 CPU Board †	A		
IN	IN	1st Sun Mem Exp†		A	
IN	IN	2nd Sun Mem Exp†			A
IN	IN	501-1105 Sun FPA		A	B
OUT	OUT	1st 501-1158 Sun SCP*#		A	B
OUT	OUT	2nd 501-1158 Sun SCP*#			A
OUT	OUT	1st 501-1221 MCP Board *∞		A	B
OUT	OUT	2nd 501-1221 MCP Board *∞			A
OUT	OUT	1st 501-1203 ALM-2 Board ∞		A	B
OUT	OUT	2nd 501-1203 ALM-2 Board ∞			A
§	§	501-1202 MAPKIT§*		A	A
OUT	OUT	Sun VME SCSI Ctlr †		B	A
OUT	OUT	501-1153 2nd Ethr Ctlr ∈		B	A
IN	OUT	1st 501-1125 Sun IPC*		B	A
IN	OUT	2nd 501-1125 Sun IPC*		A	

GENERAL NOTES:

This table vertically lists PCB slot priority assignments for the Sun-3/140C/140LC/140G in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred location for the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

1. Slot numbers are labeled on the cardcage sheet metal near the left (top for deskside models) card ejectors.
2. FOR ALL SLOTS: Install backplane jumpers in locations PX00, PX01 and PX02."X" represents the slot number.
3. TO INSTALL ANY BOARD: Configure backplane jumpers PX03 and PX04 per the above table. "X" represents the slot number. Remove air restrictor from slot if present.

4. TO REMOVE ANY BOARD: Install for the affected slot: backplane jumpers at PX03 & PX04, air restrictor, and outside filler panel.

These notes refer to symbols, such as "†" or "‡", on the slot assignment table for the Sun-3/140C/140LC/140G.

∞ **Important Note about ALM and MCP products:**
If you are using the ALM-2 with the MCP, please see Appendix A, *Notes Regarding the ALM-2 and MCP Products.*

* Consult your Sun sales office concerning software considerations for and availability of this unbundled product.

\# FOR SLOTS 2 AND 3: If you wish to install a "VME-to-Multibus Adapter Board" based product (such as the SCP), you MUST USE adapter board subassembly Revision 501-1054-04, Rev A or later to avoid signal contention on the "P2 Memory" bus.

∈ The "501-1153 2nd Ethr Ctlr" board is the interface for the second Ethernet network. The interface for the first network resides on the CPU board.

§ Each MAPKIT option occupies two slots. The "BG3" and "IACK" jumpers on the backplane are OUT for slot 2, and "BG3" is IN for slot 3.

† These boards have one of the following descriptions:

2MB 501-1163 Sun CPU
4MB 501-1164 Sun CPU
4MB 501-1208 Sun CPU

2MB 501-1131 Sun Memory Expansion
4MB 501-1132 Sun Memory Expansion

501-1138 Sun-2 SCSI Ctlr.
501-1217 Sun-3 SCSI Ctlr.

2.4. Sun-3/150X

Table 2-4 *Sun-3/150X*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*					
BG3	IACK							
P X 0 3	P X 0 4		1	# 2	# 3	# 4	# 5	# 6
OUT	OUT	Sun CPU Board †	A					
IN	IN	1st 501-1132 Sun 4MB Mem Exp		A				
IN	IN	501-1105 Sun FPA				A		
IN	IN	2nd 501-1132 Sun 4MB Mem Exp			A			
IN	IN	3rd 501-1132 Sun 4MB Mem Exp				A		
OUT	OUT	Sun GP †∇					A	
IN	IN	501-1058 Sun GB #						A
OUT	N/A	501-1157 Sun ALM-1**#					**	A
OUT	OUT	1st 501-1158 Sun SCP*#		A	B	C	D	E
OUT	OUT	2nd 501-1158 Sun SCP*#			A	B	C	D
OUT	OUT	1st 501-1221 MCP Board *∞		A	B	C	D	E
OUT	OUT	2nd 501-1221 MCP Board *∞			A	B	C	D
OUT	OUT	3rd 501-1221 MCP Board *∞				A	B	C
OUT	OUT	4th 501-1221 MCP Board *∞					A	B
OUT	OUT	1st 501-1203 ALM-2 Board ∞		A	B	C	D	E
OUT	OUT	2nd 501-1203 ALM-2 Board ∞			A	B	C	D
OUT	OUT	3rd 501-1203 ALM-2 Board ∞				A	B	C
OUT	OUT	4th 501-1203 ALM-2 Board ∞					A	B
OUT	OUT	370-1128 SunLink Channel Adapter *∂		A	A B	C B	C D	D
§	§	1st 501-1202 MAPKIT§*		A	A B	C B	C D	D
§	§	2nd 501-1202 MAPKIT§*				A	A B	B
OUT	OUT	Sun VME SCSI Ctlr †		A	B	C	D	E
IN	OUT	Sun VME Color †∇		A	B	C	D	E
OUT	OUT	501-1153 2nd Ethr Ctlr ∈#		A	B	C	D	E

Table 2-4 *Sun-3/150X— Continued*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*					
BG3	IACK							
PX03	PX04		1	# 2	# 3	# 4	# 5	# 6
IN	OUT	1st 501-1125 Sun IPC*		A	B	C	D	E
IN	OUT	2nd 501-1125 Sun IPC*			A	B	C	D

GENERAL NOTES:

This table vertically lists PCB slot priority assignments for the Sun-3/150C/150M/150LC/150S in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred location for the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

1. Slot numbers are labeled on the cardcage sheet metal near the top cardcage ejectors.
2. FOR ALL SLOTS: Install backplane jumpers in locations PX00, PX01 and PX02."X" represents the slot number.
3. TO INSTALL ANY BOARD: Configure backplane jumpers PX03 and PX04 per the above table. "X" represents the slot number.
4. TO REMOVE ANY BOARD: Install for the affected slot: backplane jumpers at locations PX03 & PX04, outside filler panel and air flow restricter. P604 for Slot 6 does not physically exist on the backplane.

These notes refer to symbols, such as "†" or "‡", on the slot assignment table for the Sun-3/150C/150M/150LC/150S.

∞ **Important Notes about ALM and MCP products:**

1. Because of the release of the Sun-ALM-2, references to Sun's previously released product, known only as the ALM, have now been changed. The ALM will now be referred to as the Sun-ALM-1.
2. If you are using the ALM-2 with the MCP or ALM-1, please see Appendix A, *Notes Regarding the ALM-2 and MCP Products.*

∂ **Important Cautions about the SunLink Channel Adapter:**

1. Each Channel Adapter assembly occupies two slots. The **BG3** and **IACK** backplane jumpers *must* be removed for *both slots.*
2. If after selecting a slot for the Channel Adapter assembly an unused slot exists between the CPU (Slot 1) and the Channel Adapter, neither a 1/2 inch Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the Channel Adapter's data throughput rate may be affected.

Notes about installing a VME-to-Multibus Adapter Board based product:

1. FOR SLOTS 2 THROUGH 4: If you wish to install a "VME-to-Multibus Adapter Board" based product (such as the SCP), you MUST USE adapter board subassembly Revision 501-1054-04, Rev A or later to avoid signal contention on the "P2 Memory" bus.
2. FOR SLOT 6: If any combination of Graphics option boards is installed in Slot 5 and you would like to install a "VME -to-Multibus Adapter Board" based product, you MUST USE Adapter Board subassembly 501-1054-04, Rev A or later to avoid signal contention on the "GP" private" bus.

** Since the 501-1157 Sun ALM-1 consumes two slot spaces, TO INSTALL IT, YOU MUST:

1. REMOVE any board already residing in slot 5 and install jumpers in locations P503 and P504 on the backplane.
2. REMOVE any outside filler panel(s) covering slots 5 and 6.
3. REMOVE any air restrictors installed in these slots.

∈ The "2nd Ethr Ctlr" board is the interface for the second Ethernet network. The interface for the first network resides on the CPU board.

* Consult your Sun sales office concerning software considerations for and availability of this unbundled product.

§ Each MAPKIT option occupies two slots. The "BG3" and "IACK" jumpers on the backplane are OUT for the slot that contains the MAPKIT board that is nearest slot 1 (on the left when facing the rear of the system).

∇ **When installing the 501-1268 Graphics Processor 2 (GP2):** The Graphics Processor 2 will not function with the following options are installed.

501-1058 Graphics Buffer
501-1116 Sun-3 Color Board (CG3)
501-1014 Sun-2 Color Board

∇ **When installing the 501-1267 CG5 Color Board *with* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The Graphics Processor 2 (GP2) communicates with the CG5 over a private P2 bus which MUST BE ENABLED on the CG5 board by a hardware switch setting. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.
2. The CG5 board can only be installed in slot 6.
3. Since the 501-1157 Sun ALM-1 consumes two slot spaces (slots 5 and 6), it cannot be used with any multiple board graphics option.

∇ **When installing the 501-1267 CG5 Color Board *without* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The 501-1267 CG5 Color Board may be used in place of the 501-1116 Sun-3 CG3 Color Board. If you are installing the CG5 Board with either the 501-1055 Graphics Processor or the 501-1139 Graphics Processor Plus, the CG5 MUST BE installed in slots 2-4 only.
2. The CG5 board MUST HAVE its private P2 bus disabled when it is installed. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.

† These boards have one of the following descriptions:

2MB 501-1163 Sun CPU
4MB 501-1164 Sun CPU
4MB 501-1208 Sun CPU

501-1138 Sun-2 SCSI Ctlr.
501-1217 Sun-3 SCSI Ctlr.

501-1055 Graphics Processor
501-1139 Graphics Processor Plus
501-1268 Graphics Processor 2

501-1116 Sun-3 (CG3) Color
501-1267 Sun CG5 Color

2.5. Sun-3/160X

Table 2-5 *Sun-3/160X*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
P X 0 3	P X 0 4		1	# 2	# 3	# 4	# 5	# 6	7	8	9	# 10	# 11	# 12
OUT	OUT	Sun CPU†	A											
IN	IN	1st Sun Mem Exp†					A							
IN	IN	2nd Sun Mem Exp†				A								
IN	IN	3rd Sun Mem Exp†			A									
IN	IN	501-1105 Sun FPA						A						
OUT	OUT	Sun GP† ∇										A		
IN	IN	501-1058 Sun GB #											A	
IN	IN	501-1383 TAAC-1 ‡										A	‡	‡
OUT	N/A	501-1157 Sun ALM-1**#											**	A
OUT	OUT	Sun VME SCSI Ctlr †							A					
OUT	OUT	1st 501-1158 Sun SCP*#		E	A	B	C	D						
OUT	OUT	2nd 501-1158 Sun SCP*#		D		A	B	C	E	F				
OUT	OUT	1st 501-1221 MCP Board *∞		E	A	B	C	D	F	G	H			
OUT	OUT	2nd 501-1221 MCP Board *∞		D		A	B	C	E	F	G	H	I	J
OUT	OUT	3rd 501-1221 MCP Board *∞		C			A	B	D	E	F	G	H	I
OUT	OUT	4th 501-1221 MCP Board *∞		B				A	C	D	E	F	G	H
OUT	OUT	1st 501-1203 ALM-2 Board ∞		E	A	B	C	D	F	G	H	I	J	K
OUT	OUT	2nd 501-1203 ALM-2 Board ∞		D		A	B	C	E	F	G	H	I	J
OUT	OUT	3rd 501-1203 ALM-2 Board ∞		C			A	B	D	E	F	G	H	I
OUT	OUT	4th 501-1203 ALM-2 Board ∞		B				A	C	D	E	F	G	H
OUT	OUT	1st 370-1128 SunLink Channel Adapter *∂		A	A B	C B	C D	E D	E F	G F	G H	I H	I J	J
OUT	OUT	2nd 370-1128 SunLink Channel Adapter *∂				A	A B	C B	C D	E D	E F	G F	G H	H
§	§	1st 501-1202 MAPKIT§*		A	A B	C B	C D	E D	E F	G F	G H	I H	I J	J
§	§	2nd 501-1202 MAPKIT§*				A	A B	C B	C D	E D	E F	G F	G H	H
OUT	OUT	501-1153 2nd Ethr Ctlr ∈#		E	A	B	C	D	F	G	H	I	J	K

Table 2-5 *Sun-3/160X— Continued*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
PX03	PX04		1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
IN	OUT	1st 501-1125 Sun IPC*		E	A	B	C	D	F	G	H	I	J	K
IN	OUT	2nd 501-1125 Sun IPC*		D		A	B	C	E	F	G	H	I	J
IN	OUT	3rd 501-1125 Sun IPC*		C			A	B	D	E	F	G	H	I
IN	OUT	4th 501-1125 Sun IPC*		B				A	C	D	E	F	G	H
OUT	OUT	1st 1/2" Tape Ctlr†#							A	B	C	D	E	F
OUT	OUT	2nd 1/2" Tape Ctlr†#								A	B	C	D	E
OUT	OUT	1st SMD Ctlr†#							A	B	C	D	E	F
OUT	OUT	2nd SMD Ctlr†#								A	B	C	D	E
IN	OUT	Sun VME Color †@∇		K	A	B	C	D	E	F	G	H	I	J

FOR SYSTEMS WITHOUT A SUN SCSI OPTION:

If your system DOES NOT have SCSI Adapter, please use Table 2-6 — *Sun-3/180S Using the External SCSI Bus Sun-3 501-1191 VME Adapter*.

GENERAL NOTES:

This table vertically lists PCB slot priority assignments for the Sun-3/160M/160C/160G/160S in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred location for the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

1. The order of the cardcage slots for the 12-slot deskside pedestal is slot 1 is leftmost and slot 12 is the rightmost when viewing the pedestal from the side where boards are installed/removed from the cardcage.
2. FOR ALL SLOTS: Install backplane jumpers in locations PX00, PX01 and PX02."X" represents the slot number.
3. TO INSTALL ANY BOARD: Configure backplane jumpers PX03 and PX04 per the above table. "X" represents the slot number.
4. TO REMOVE ANY BOARD: Install for the affected slot: backplane jumpers at locations PX03 & PX04, outside filler panel and air flow restricter. P1204 for Slot 12 does not physically exist on the backplane.
5. DO NOT INSTALL an air restrictor in Slot 2 when a board is not installed there.
6. NON-MEMORY/FPA BOARD OPTIONS THAT MAY INSTALL INTO SLOT 2: For slots 2 through 5, non-memory board options should not be loaded using the standard left to right sequence. Keeping slot 2 empty until

absolutely necessary to fill it assists with the cooling of the Sun-3/160 CPU board. However, slot 2 of the cardcage must be populated with a board when

- all 12 slots are used, OR
- throughput functionality of a board option is affected due to a different option board, which appears lower on the table list, is loaded into slot 2, OR
- throughput functionality of a board option is affected by the board being placed to the right of the fixed-position Sun VME SCSI Controller.

In these cases, the board installed into slot 2 must be the first board that would otherwise go into the first open slot to the right of slot 2.

These notes refer to symbols, such as "†" or "‡", on the slot assignment table for the Sun-3/160M/160C/160G/160S.

∞ **Important Notes about ALM and MCP products:**

1. Because of the release of the Sun-ALM-2, references to Sun's previously released product, known only as the ALM, have now been changed. The ALM will now be referred to as the Sun-ALM-1.
2. If you are using the ALM-2 with the MCP or ALM-1, please see Appendix A, *Notes Regarding the ALM-2 and MCP Products.*

∂ **Important Cautions about the SunLink Channel Adapter:**

1. Each Channel Adapter assembly occupies two slots. The **BG3** and **IACK** backplane jumpers *must* be removed for *both slots.*
2. If after selecting a slot for the Channel Adapter assembly an unused slot exists between the CPU (Slot 1) and the Channel Adapter, neither a 1/2 inch Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the Channel Adapter's data throughput rate may be affected.

Notes about installing a VME-to-Multibus Adapter Board based product:

1. FOR SLOTS 2 THROUGH 6: If you wish to install a "VME-to-Multibus Adapter Board" based product (such as the SCP), you MUST USE adapter board subassembly Revision 501-1054-04, Rev A or later to avoid signal contention on the "P2 Memory" bus.
2. FOR SLOTS 11 AND 12: If any combination of graphics option boards is installed in slots 10 and 11 and you would like to install a VME to Multibus Adapter Board based product, you MUST USE Adapter board subassembly revision 501-1054-04 REV A or later to avoid signal contention on the GP/GB private bus.

‡ Since the 501-1383 TAAC-1 consumes three slot spaces, TO INSTALL IT, YOU MUST REMOVE any board already residing in slots 10, 11, and 12 and install jumpers at locations P1103, P1104, and P1203 on the backplane.

** **Since the 501-1157 Sun ALM-1 consumes two slot spaces, TO INSTALL IT, YOU MUST:**

1. REMOVE any board already residing in slot 11 and install jumpers in locations P1103 and P1104 on the backplane;
2. REMOVE any outside filler panel(s) covering slots 11 and 12.
3. REMOVE any air restrictors installed in these slots.

∈ The "2nd Ethr Ctlr" board is the interface for the second Ethernet network. The interface for the first network resides on the CPU board.

* Consult your Sun sales office concerning software considerations for and availability of this unbundled product.

§ **Notes about the MAPKIT option:**

1. Each MAPKIT option occupies two slots. The "BG3" and "IACK" jumpers on the backplane are OUT for the slot that contains the MAPKIT board nearest slot 1 (far left when facing system rear) and are IN for the other slot.
2. If after selecting a slot for the MAPKIT option an unused slot exists between the CPU (slot 1) and the MAPKIT, neither a 1/2" Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the MAPKIT's throughput rate may be affected.

@ The 501-1014 Sun-2 Color board may be transferred from another system and used in place of the 501-1116 Sun-3 (CG3) Color board. Note that the Sun-2 Color board is no longer available when ordering new Sun systems.

∇ **When installing the 501-1268 Graphics Processor 2 (GP2):** The Graphics Processor 2 will not function with the following options are installed.

501-1058 Graphics Buffer
501-1116 Sun-3 Color Board (CG3)
501-1014 Sun-2 Color Board

∇ **When installing the 501-1267 CG5 Color Board *with* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The Graphics Processor 2 (GP2) communicates with the CG5 over a private P2 bus which MUST BE ENABLED on the CG5 board by a hardware switch setting. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.
2. The CG5 board can only be installed in slots 11(A) and 12(B) where (A) and (B) denote slot priority. (A) denotes the highest priority and (B) denotes the next highest priority.
3. Since the 501-1157 Sun ALM-1 consumes two slot spaces (slots 11 and 12), it cannot be used with any multiple board graphics options.

∇ **When installing the 501-1267 CG5 Color Board *without* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The 501-1267 CG5 Color Board may be used in place of the 501-1116 Sun-3 CG3 Color Board. If you are installing the CG5 Board with either the 501-1055 Graphics Processor or the 501-1139 Graphics Processor Plus, the CG5 MUST BE installed in slots 2-9 only.
2. The CG5 board MUST HAVE its private P2 bus disabled when the 501-1268 Graphics Processor 2 (GP2) is **not** installed. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.

† These boards have one of the following descriptions:

2MB 501-1163 Sun CPU
4MB 501-1164 Sun CPU
4MB 501-1208 Sun CPU

2MB 501-1131 Sun Memory Exp.
4MB 501-1132 Sun Memory Exp.

501-1055 Graphics Processor
501-1139 Graphics Processor Plus
501-1268 Graphics Processor 2

501-1156 CPC 1/2" Tape Ctlr (1600 BPI)
501-1155 Xylogics 472 1/2" Tape Ctlr (6250 BPI)

501-1154 Xylogics 450 SMD Ctlr
501-1166 Xylogics 451 SMD Ctlr

501-1149 Sun-2 SCSI Ctlr.
501-1170 Sun-3 SCSI Ctlr.

501-1014 Sun-2 Color
501-1116 Sun-3 (CG3) Color
501-1267 Sun CG5 Color

2.6. Sun-3/180S Using the External SCSI Bus Sun-3 501-1191 SCSI VME Adapter

Table 2-6 *Sun-3/180S Using the External SCSI Bus Sun-3 501-1191 VME Adapter*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
P X 0 3	P X 0 4		1	# 2	# 3	# 4	# 5	# 6	7	8	9	# 10	# 11	# 12
OUT	OUT	Sun CPU†	A											
IN	IN	1st Sun Mem Exp†		A										
IN	IN	2nd Sun Mem Exp†			A									
IN	IN	3rd Sun Mem Exp†				A								
IN	IN	501-1105 Sun FPA						A						
OUT	OUT	Sun GP †∇										A		
IN	IN	501-1058 Sun GB #											A	
IN	IN	501-1383 TAAC-1 ‡										A	‡	‡
OUT	N/A	1st 501-1165 Sun ALM-1#												A
OUT	OUT	2nd 501-1165 Sun ALM-1#											A	
OUT	OUT	3rd 501-1165 Sun ALM-1#										A		
OUT	OUT	1st 501-1158 Sun SCP*#		A	B	C	D							
OUT	OUT	2nd 501-1158 Sun SCP*#			A	B	C	D	E					
OUT	OUT	1st 501-1221 MCP Board *∞		A	B	C	D	E	F	G				
OUT	OUT	2nd 501-1221 MCP Board *∞			A	B	C	D	E	F	G			
OUT	OUT	3rd 501-1221 MCP Board *∞				A	B	C	D	E	F	G	H	I
OUT	OUT	4th 501-1221 MCP Board *∞					A	B	C	D	E	F	G	H
OUT	OUT	1st 501-1203 ALM-2 Board ∞		A	B	C	D	E	F	G	H	I	J	K
OUT	OUT	2nd 501-1203 ALM-2 Board ∞			A	B	C	D	E	F	G	H	I	J
OUT	OUT	3rd 501-1203 ALM-2 Board ∞				A	B	C	D	E	F	G	H	I
OUT	OUT	4th 501-1203 ALM-2 Board ∞					A	B	C	D	E	F	G	H
OUT	OUT	1st 370-1128 SunLink Channel Adapter *∂		A	A B	C B	C D	E D	E F	G F	G H	I H	I J	J
OUT	OUT	2nd 370-1128 SunLink Channel Adapter *∂				A	A B	C B	C D	E D	E F	G F	G H	H
§	§	1st 501-1202 MAPKIT§*		A	A	C	C	E	E	G	G	I	I	

Table 2-6 *Sun-3/180S Using the External SCSI Bus Sun-3 501-1191 VME Adapter— Continued*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
PX03	PX04		1	#2	#3	#4	#5	#6	7	8	9	#10	#11	#12
					B	B	D	D	F	F	H	H	J	J
§	§	2nd 501-1202 MAPKIT§*				A	A B	C B	C D	E D	E F	G F	G H	H
OUT	OUT	Sun VME SCSI Ctlr †		A	B	C	D	E	F	G	H	I	J	K
IN	OUT	Sun VME Color †@∇		A	B	C	D	E	F	G	H	I	J	K
OUT	OUT	501-1153 2nd Ethr Ctlr ∈#		A	B	C	D	E	F	G	H	I	J	K
IN	OUT	1st 501-1125 Sun IPC*		A	B	C	D	E	F	G	H	I	J	K
IN	OUT	2nd 501-1125 Sun IPC*			A	B	C	D	E	F	G	H	I	J
IN	OUT	3rd 501-1125 Sun IPC*				A	B	C	D	E	F	G	H	I
IN	OUT	4th 501-1125 Sun IPC*					A	B	C	D	E	F	G	H
OUT	OUT	1st 1/2" Tape Ctlr†#		A	B	C	D	E	F	G	H	I	J	K
OUT	OUT	2nd 1/2" Tape Ctlr†#			A	B	C	D	E	F	G	H	I	J
OUT	OUT	1st SMD Ctlr†#		A	B	C	D	E	F	G	H	I	J	K
OUT	OUT	2nd SMD Ctlr†#			A	B	C	D	E	F	G	H	I	J

FOR SYSTEMS WITHOUT A SUN SCSI OPTION:

If your system DOES NOT have SCSI Adapter, please use this table.

GENERAL NOTES:

This table vertically lists PCB slot priority assignments for the Sun-3/180S with the 501-1191 Adapter in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred location for the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

1. Slot numbers are labeled on the cardcage sheet metal near the top cardcage ejectors.
2. FOR ALL SLOTS: Install backplane jumpers in locations PX00, PX01 and PX02."X" represents the slot number.
3. TO INSTALL ANY BOARD: Configure backplane jumpers PX03 and PX04 per the above table. "X" represents the slot number.
4. TO REMOVE ANY BOARD: Install for the affected slot: backplane jumpers at locations PX03 & PX04, outside filler panel and air flow restricter. P1204 for Slot 12 does not physically exist on the backplane.

5. The Sun 3X2 VME Adapter Boards for the Sun SCSI Controller are not architecture-dependent. The Adapters have the following descriptions:
   - 501-1059 Sun-2 3X2 Adapter has P2 bus connections. It is Option 160A in the Sun sales catalog.
   - 501-1191 Sun-3 3X2 Adapter does not have P2 bus connections. It is Option 160B in the Sun sales catalog.

These notes refer to symbols, such as "†" or "‡", on the slot assignment table for the Sun-3/180S with 501-1191 Adapter.

∞ **Important Notes about ALM and MCP products:**

1. Because of the release of the Sun-ALM-2, references to Sun's previously released product, known only as the ALM, have now been changed. The ALM will now be referred to as the Sun-ALM-1.
2. If you are using the ALM-2 with the MCP or ALM-1, please see Appendix A, *Notes Regarding the ALM-2 and MCP Products.*

∂ **Important Cautions about the SunLink Channel Adapter:**

1. Each Channel Adapter assembly occupies two slots. The **BG3** and **IACK** backplane jumpers *must* be removed for *both slots.*
2. If after selecting a slot for the Channel Adapter assembly an unused slot exists between the CPU (Slot 1) and the Channel Adapter, neither a 1/2 inch Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the Channel Adapter's data throughput rate may be affected.

‡ Since the 501-1383 TAAC-1 consumes three slot spaces, TO INSTALL IT, YOU MUST REMOVE any board already residing in slots 10, 11, and 12 and install jumpers at locations P1103, P1104, and P1203 on the backplane.

Notes about installing a VME-to-Multibus Adapter Board based product:

1. FOR SLOTS 2 THROUGH 6: If you wish to install a "VME-to-Multibus Adapter Board" based product (such as the SCP), you MUST USE adapter board subassembly Revision 501-1054-04, Rev A or later to avoid signal contention on the "P2 Memory" bus.
2. FOR SLOTS 11 AND 12: If any combination of Graphics option boards is installed in slots 10 and 11 and you wish to install a "VME to Multibus Adapter Board" based product, you MUST USE Adapter board subassembly revision 501-1054-04 REV A or later to avoid signal contention on the "GP/GB" bus.

∈ The "2nd Ethr Ctlr" board is the interface for the second Ethernet network. The interface for the first network resides on the CPU board.

* Consult your Sun sales office concerning software considerations for and availability of this unbundled product.

§ **Notes about the MAPKIT option:**

1. Each MAPKIT option occupies two slots. The "BG3" and "IACK" jumpers on the backplane are OUT for the slot that contains the MAPKIT board nearest slot 1 (far left when facing system rear) and are IN for the other slot.
2. If after selecting a slot for the MAPKIT option an unused slot exists between the CPU (slot 1) and the MAPKIT, neither a 1/2" Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the MAPKIT's throughput rate may be affected.

@ The 501-1014 Sun-2 Color board may be transferred from another system and used in place of the 501-1116 Sun-3 (CG3) Color board. Note that the Sun-2 Color board is no longer available when ordering new Sun

systems.

∇ **When installing the 501-1268 Graphics Processor 2 (GP2):** The Graphics Processor 2 will not function with the following options are installed.

501-1058 Graphics Buffer
501-1116 Sun-3 Color Board (CG3)
501-1014 Sun-2 Color Board

∇ **When installing the 501-1267 CG5 Color Board *with* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The Graphics Processor 2 (GP2) communicates with the CG5 over a private P2 bus which MUST BE ENABLED on the CG5 board by a hardware switch setting. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.
2. The CG5 board can only be installed in slots 11(A) and 12(B) where (A) and (B) denote slot priority. (A) denotes the highest priority and (B) denotes the next highest priority.

∇

When installing the 501-1267 CG5 Color Board *without* the 501-1268 Graphics Processor 2 (GP2) installed:

1. The 501-1267 CG5 Color Board may be used in place of the 501-1116 Sun-3 CG3 Color Board. If you are installing the CG5 Board with either the 501-1055 Graphics Processor or the 501-1139 Graphics Processor Plus, the CG5 MUST BE installed in slots 2-9 only.
2. The CG5 board MUST HAVE its private P2 bus disabled when it is installed. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.

† These boards have one of the following descriptions:

2MB 501-1163 Sun CPU
4MB 501-1164 Sun CPU
4MB 501-1208 Sun CPU

2MB 501-1131 Sun Memory Exp.
4MB 501-1132 Sun Memory Exp.

501-1055 Graphics Processor
501-1139 Graphics Processor Plus
501-1268 Graphics Processor 2

501-1156 CPC 1/2" Tape Ctlr. (1600 BPI)
501-1155 Xylogics 472 1/2" Tape Ctlr. (6250 BPI)

501-1138 Sun-2 SCSI Ctlr.
501-1217 Sun-3 SCSI Ctlr.

501-1154 Xylogics 450 SMD Ctlr.
501-1166 Xylogics 451 SMD Ctlr.

501-1014 Sun-2 Color
501-1116 Sun-3 (CG3) Color
501-1267 Sun CG5 Color

2.7. Sun-3/180S Using the 501-1167 Sun-2 SCSI Host Adapter

Table 2-7 *Sun-3/180S Using the 501-1167 Sun-2 SCSI Host Adapter*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
P X 0 3	P X 0 4		1	# 2	# 3	# 4	# 5	# 6	7	8	9	# 10	# 11	# 12
OUT	OUT	Sun CPU†	A											
IN	IN	1st Sun Mem Exp†		A										
IN	IN	2nd Sun Mem Exp†			A									
IN	IN	3rd Sun Mem Exp†				A								
IN	IN	501-1105 Sun FPA						A						
OUT	OUT	Sun GP †∇										A		
IN	IN	501-1058 Sun GB #											A	
IN	IN	501-1383 TAAC-1 ‡										A	‡	‡
OUT	N/A	1st 501-1165 Sun ALM-1#												A
OUT	OUT	2nd 501-1165 Sun ALM-1#											A	
OUT	OUT	3rd 501-1165 Sun ALM-1#										A		
OUT	OUT	501-1167 Sun-2 VME SCSI Ctlr ++							A					
OUT	OUT	1st 501-1158 Sun SCP*#		A	B	C	D							
OUT	OUT	2nd 501-1158 Sun SCP*#			A	B	C	D		E				
OUT	OUT	1st 501-1221 MCP Board *∞		A	B	C	D	E		F	G			
OUT	OUT	2nd 501-1221 MCP Board *∞			A	B	C	D		E	F	G	H	I
OUT	OUT	3rd 501-1221 MCP Board *∞				A	B	C		D	E	F	G	H
OUT	OUT	4th 501-1221 MCP Board *∞					A	B		C	D	E	F	G
OUT	OUT	1st 501-1203 ALM-2 Board ∞		A	B	C	D	E		F	G	H	I	J
OUT	OUT	2nd 501-1203 ALM-2 Board ∞			A	B	C	D		E	F	G	H	I
OUT	OUT	3rd 501-1203 ALM-2 Board ∞				A	B	C		D	E	F	G	H
OUT	OUT	4th 501-1203 ALM-2 Board ∞					A	B		C	D	E	F	G
OUT	OUT	1st 370-1128 SunLink Channel Adapter *∂		A	A B	C B	C D	D		E	E F	G F	G H	H
OUT	OUT	2nd 370-1128 SunLink Channel Adapter *∂				A	A B	B		C	C D	E D	E F	F
§	§	1st 501-1202 MAPKIT§*		A	A	C	C			E	E	G	G	

Table 2-7 *Sun-3/180S Using the 501-1167 Sun-2 SCSI Host Adapter— Continued*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
PX03	PX04		1	#2	#3	#4	#5	#6	7	8	9	#10	#11	#12
					B	B	D	D			F	F	H	H
§	§	2nd 501-1202 MAPKIT§*				A	A B	B		C	C D	E D	E F	F
IN	OUT	Sun VME Color †@∇		A	B	C	D	E		F	G	H	I	J
OUT	OUT	501-1153 2nd Ethr Ctlr ∈#		A	B	C	D	E		F	G	H	I	J
IN	OUT	1st 501-1125 Sun IPC*		A	B	C	D	E		F	G	H	I	J
IN	OUT	2nd 501-1125 Sun IPC*			A	B	C	D		E	F	G	H	I
IN	OUT	3rd 501-1125 Sun IPC*				A	B	C		D	E	F	G	H
IN	OUT	4th 501-1125 Sun IPC*					A	B		C	D	E	F	G
OUT	OUT	1st 1/2" Tape Ctlr†#								A	B	C	D	E
OUT	OUT	2nd 1/2" Tape Ctlr†#									A	B	C	D
OUT	OUT	1st SMD Ctlr†#								A	B	C	D	E
OUT	OUT	2nd SMD Ctlr†#									A	B	C	D

GENERAL NOTES:

This table vertically lists PCB slot priority assignments for the Sun-3/180S (with Sun-2 3X2 Adapter 501-1059) in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred location for the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

1. Slot numbers are labeled on the cardcage sheet metal near the top cardcage ejectors.
2. FOR ALL SLOTS: Install backplane jumpers in locations PX00, PX01 and PX02."X" represents the slot number.
3. TO INSTALL ANY BOARD: Configure backplane jumpers PX03 and PX04 per the above table. "X" represents the slot number.
4. TO REMOVE ANY BOARD: Install for the affected slot: backplane jumpers at locations PX03 & PX04, outside filler panel and air flow restricter. P1204 for Slot 12 does not physically exist on the backplane.
5. The Sun 3X2 VME Adapter Boards for the Sun SCSI Controller are not architecture-dependent. The Adapters have the following descriptions:

- 501-1059 Sun-2 3X2 Adapter has P2 bus connections. It is Option 160A in the Sun sales catalog.
- 501-1191 Sun-3 3X2 Adapter does not have P2 bus connections. It is Option 160B in the Sun sales catalog.

These notes refer to symbols, such as "†" or "‡", on the slot assignment table for the Sun-3/180S with 501-1059 Adapter.

++ The Adapter for the 501-1167 Sun-2 SCSI Ctlr has both P2 and external cable connections. Sun is not supporting the Sun-3 SCSI Ctlr on this type of Adapter.

∞ **Important Notes about ALM and MCP products:**

1. Because of the release of the Sun-ALM-2, references to Sun's previously released product, known only as the ALM, have now been changed. The ALM will now be referred to as the Sun-ALM-1.
2. If you are using the ALM-2 with the MCP or ALM-1, please see Appendix A, *Notes Regarding the ALM-2 and MCP Products.*

∂ **Important Cautions about the SunLink Channel Adapter:**

1. Each Channel Adapter assembly occupies two slots. The **BG3** and **IACK** backplane jumpers *must* be removed for *both* slots.
2. If after selecting a slot for the Channel Adapter assembly an unused slot exists between the CPU (Slot 1) and the Channel Adapter, neither a 1/2 inch Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the Channel Adapter's data throughput rate may be affected.

‡ Since the 501-1383 TAAC-1 consumes three slot spaces, TO INSTALL IT, YOU MUST REMOVE any board already residing in slots 10, 11, and 12 and install jumpers at locations P1103, P1104, and P1203 on the backplane.

Notes about installing a VME-to-Multibus Adapter Board based product:

1. FOR SLOTS 2 THROUGH 6: If you wish to install a "VME-to-Multibus Adapter Board" based product (such as the SCP), you MUST USE adapter board subassembly Revision 501-1054-04, Rev A or later to avoid signal contention on the "P2 Memory" bus.
2. FOR SLOTS 11 AND 12: If any combination of GP & GB boards are installed in slots 10 and 11 and you wish to install a "VME to Multibus Adapter Board" based product, you MUST USE Adapter board subassembly revision 501-1054-04 REV A or later to avoid signal contention on the "GP/GB" bus.

∈ The "2nd Ethr Ctlr" board is the interface for the second Ethernet network. The interface for the first network resides on the CPU board.

* Consult your Sun sales office concerning software considerations for and availability of this unbundled product.

§ **Notes about the MAPKIT option:**

1. Each MAPKIT option occupies two slots. The "BG3" and "IACK" jumpers on the backplane are OUT for the slot that contains the MAPKIT board nearest slot 1 (far left when facing system rear) and are IN for the other slot.
2. If after selecting a slot for the MAPKIT option an unused slot exists between the CPU (slot 1) and the MAPKIT, neither a 1/2" Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the MAPKIT's throughput rate may be affected.

@ The 501-1014 Sun-2 Color board may be transferred from another system and used in place of the 501-1116 Sun-3 (CG3) Color board. Note that the Sun-2 Color board is no longer available when ordering new Sun

systems.

∇ **When installing the 501-1268 Graphics Processor 2 (GP2):** The Graphics Processor 2 will not function with the following options are installed.

501-1058 Graphics Buffer
501-1116 Sun-3 Color Board (CG3)
501-1014 Sun-2 Color Board

∇ **When installing the 501-1267 CG5 Color Board *with* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The Graphics Processor 2 (GP2) communicates with the CG5 over a private P2 bus which MUST BE ENABLED on the CG5 board by a hardware switch setting. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.
2. The CG5 board can only be installed in slots 11(A) and 12(B) where (A) and (B) denote slot priority. (A) denotes the highest priority and (B) denotes the next highest priority.

∇ **When installing the 501-1267 CG5 Color Board *without* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The 501-1267 CG5 Color Board may be used in place of the 501-1116 Sun-3 CG3 Color Board. If you are installing the CG5 Board with either the 501-1055 Graphics Processor or the 501-1139 Graphics Processor Plus, the CG5 MUST BE installed in slots 2-9 only.
2. The CG5 board MUST HAVE its private P2 bus disabled when it is installed. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.

† These boards have one of the following descriptions:

2MB 501-1163 Sun CPU
4MB 501-1164 Sun CPU
4MB 501-1208 Sun CPU

2MB 501-1131 Sun Memory Exp.
4MB 501-1132 Sun Memory Exp.

501-1055 Graphics Processor
501-1139 Graphics Processor Plus
501-1268 Graphics Processor 2

501-1156 CPC 1/2" Tape Ctlr. (1600 BPI)
501-1155 Xylogics 472 1/2" Tape Ctlr. (6250 BPI)

501-1154 Xylogics 450 SMD Ctlr.
501-1166 Xylogics 451 SMD Ctlr.

501-1014 Sun-2 Color
501-1116 Sun-3 (CG3) Color
501-1267 Sun CG5 Color

2.8. Sun-3/180S with Reserved Slots and Sun-3 501-1191 SCSI VME Adapter

Table 2-8 *Sun-3/180S with Reserved Slots and Sun-3 501-1191 SCSI VME Adapter*

Note: This table reserves slots 7, 8 and 9 for non-Sun boards that have "P2" bus signals.

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
PX03	PX04		1	#2	#3	#4	#5	#6	7	8	9	#10	#11	#12
OUT	OUT	Sun CPU†	A											
IN	IN	1st Sun Mem Exp†		A										
IN	IN	2nd Sun Mem Exp†			A									
IN	IN	3rd Sun Mem Exp†				A								
IN	IN	501-1105 Sun FPA						A						
OUT	OUT	Sun GP †∇										A		
IN	IN	501-1058 Sun GB #											A	
IN	IN	501-1383 TAAC-1 ‡										A	‡	‡
OUT	N/A	1st 501-1165 Sun ALM-1#												A
OUT	OUT	2nd 501-1165 Sun ALM-1#											A	
OUT	OUT	3rd 501-1165 Sun ALM-1#										A		
OUT	OUT	1st 501-1158 Sun SCP*#		A	B	C	D							
OUT	OUT	2nd 501-1158 Sun SCP*#			A	B	C	D				E	F	G
OUT	OUT	1st 501-1221 MCP Board *∞		A	B	C	D	E				F	G	H
OUT	OUT	2nd 501-1221 MCP Board *∞			A	B	C	D				E	F	G
OUT	OUT	3rd 501-1221 MCP Board *∞				A	B	C				D	E	F
OUT	OUT	4th 501-1221 MCP Board *∞					A	B				C	D	E
OUT	OUT	1st 501-1203 ALM-2 Board ∞		A	B	C	D	E				F	G	H
OUT	OUT	2nd 501-1203 ALM-2 Board ∞			A	B	C	D				E	F	G
OUT	OUT	3rd 501-1203 ALM-2 Board ∞				A	B	C				D	E	F
OUT	OUT	4th 501-1203 ALM-2 Board ∞					A	B					C	D
OUT	OUT	1st 370-1128 SunLink Channel Adapter *∂		A	A B	C B	C D	D				E	E F	F

Table 2-8 *Sun-3/180S with Reserved Slots and Sun-3 501-1191 VME Adapter— Continued*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
PX03	PX04		1	#2	#3	#4	#5	#6	7	8	9	#10	#11	#12
OUT	OUT	2nd 370-1128 SunLink Channel Adapter *∂				A	A B	B				C	C D	D
§	§	1st 501-1202 MAPKIT§*		A	A B	C B	C D	D				E	E F	F
§	§	2nd 501-1202 MAPKIT§*				A	A B	B				C	C D	D
OUT	OUT	Sun VME SCSI Ctlr †		A	B	C	D	E				F	G	H
IN	OUT	Sun VME Color †@∇		A	B	C	D	E				F	G	H
OUT	OUT	501-1153 2nd Ethr Ctlr ∈#		A	B	C	D	E				F	G	H
IN	OUT	1st 501-1125 Sun IPC*		A	B	C	D	E				F	G	H
IN	OUT	2nd 501-1125 Sun IPC*			A	B	C	D				E	F	G
IN	OUT	3rd 501-1125 Sun IPC*				A	B	C				D	E	F
IN	OUT	4th 501-1125 Sun IPC*					A	B				C	D	E
OUT	OUT	1st 1/2" Tape Ctlr †#		A	B	C	D	E				F	G	H
OUT	OUT	2nd 1/2" Tape Ctlr †#			A	B	C	D				E	F	G
OUT	OUT	1st SMD Ctlr †#		A	B	C	D	E				F	G	H
OUT	OUT	2nd SMD Ctlr †#			A	B	C	D				E	F	G

GENERAL NOTES:

This table vertically lists PCB slot priority assignments for the Sun-3/180S (with reserved slots for non-Sun boards) in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred location for the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

1. Slot numbers are labeled on the cardcage sheet metal near the top cardcage ejectors.
2. FOR ALL SLOTS: Install backplane jumpers in locations PX00, PX01 and PX02."X" represents the slot number.
3. TO INSTALL ANY BOARD: Configure backplane jumpers PX03 and PX04 per the above table. "X" represents the slot number.
4. TO REMOVE ANY BOARD: Install for the affected slot: backplane jumpers at locations PX03 & PX04, outside filler panel and air flow restricter. P1204 for Slot 12 does not physically exist on the backplane.

5. The Sun 3X2 VME Adapter Boards for the Sun SCSI Controller are not architecture-dependent. They have the following descriptions:
   - 501-1059 Sun-2 3X2 Adapter has P2 bus connections. It is Option 160A in the Sun sales catalog.
   - 501-1191 Sun-3 3X2 Adapter does not have P2 bus connections. It is Option 160B in the Sun sales catalog.

These notes refer to symbols on the slot assignment table for the Sun-3/180S using the Sun-3 3x2 Adapter (501-1191) for the SCSI Controller, with slots 7, 8 and 9 reserved for non-Sun boards that have "P2" bus signals.

∞ **Important Notes about ALM and MCP products:**

1. Because of the release of the Sun-ALM-2, references to Sun's previously released product, known only as the ALM, have now been changed. The ALM will now be referred to as the Sun-ALM-1.
2. If you are using the ALM-2 with the MCP or ALM-1, please see Appendix A, *Notes Regarding the ALM-2 and MCP Products.*

∂ **Important Cautions about the SunLink Channel Adapter:**

1. Each Channel Adapter assembly occupies two slots. The **BG3** and **IACK** backplane jumpers *must* be removed for *both* slots.
2. If after selecting a slot for the Channel Adapter assembly an unused slot exists between the CPU (Slot 1) and the Channel Adapter, neither a 1/2 inch Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the Channel Adapter's data throughput rate may be affected.

∈ The "2nd Ethr Ctlr" board is the interface for the second Ethernet network. The interface for the first network resides on the CPU board.

* Consult your Sun sales office concerning software considerations for and availability of this unbundled product.

\# **Notes about installing a VME-to-Multibus Adapter Board based product:**

1. FOR SLOTS 2 THROUGH 6: If you wish to install a "VME-to-Multibus Adapter Board" based product (such as the SCP), you MUST USE adapter board subassembly Revision 501-1054-04, Rev A or later to avoid signal contention on the "P2 Memory" bus.
2. FOR SLOTS 11 AND 12: If any combination of GP and GB boards are installed in slots 10 and 11 and you wish to install a "VME to Multibus Adapter Board" based product, you MUST USE Adapter board subassembly revision 501-1054-04 REV A or later to avoid signal contention on the "GP/GB" bus.

** Since the 501-1383 TAAC-1 consumes three slot spaces, TO INSTALL IT, YOU MUST REMOVE any board already residing in slots 10, 11, and 12 and install jumpers at locations P1103, P1104, and P1203 on the backplane.

§ **Notes about the MAPKIT option:**

1. Each MAPKIT option occupies two slots. The "BG3" and "IACK" jumpers on the backplane are OUT for the slot that contains the MAPKIT board nearest slot 1 (far left when facing system rear) and are IN for the other slot.
2. If after selecting a slot for the MAPKIT option an unused slot exists between the CPU (slot 1) and the MAPKIT, neither a 1/2" Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the MAPKIT's throughput rate may be affected.

@ The 501-1014 Sun-2 Color board may be transferred from another system and used in place of the 501-1116 Sun-3 Color board. Note that the Sun-2 Color board is no longer available when ordering new Sun systems.

∇ **When installing the 501-1268 Graphics Processor 2 (GP2):** The Graphics Processor 2 will not function with the following options are installed.

501-1058 Graphics Buffer
501-1116 Sun-3 Color Board (CG3)
501-1014 Sun-2 Color Board

∇ **When installing the 501-1267 CG5 Color Board *with* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The Graphics Processor 2 (GP2) communicates with the CG5 over a private P2 bus which MUST BE ENABLED on the CG5 board by a hardware switch setting. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.
2. The CG5 board can only be installed in slots 11(A) and 12(B) where (A) and (B) denote slot priority. (A) denotes the highest priority and (B) denotes the next highest priority.

∇ **When installing the 501-1267 CG5 Color Board *without* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The 501-1267 CG5 Color Board may be used in place of the 501-1116 Sun-3 CG3 Color Board. If you are installing the CG5 Board with either the 501-1055 Graphics Processor or the 501-1139 Graphics Processor Plus, the CG5 MUST BE installed in slots 2-9 only.
2. The CG5 board MUST HAVE its private P2 bus disabled when it is installed. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.

† These boards have one of the following descriptions:

2MB 501-1163 Sun CPU
4MB 501-1164 Sun CPU
4MB 501-1208 Sun CPU

2MB 501-1131 Sun Memory Exp.
4MB 501-1132 Sun Memory Exp.

501-1055 Graphics Processor
501-1139 Graphics Processor Plus
501-1268 Graphics Processor 2

501-1156 CPC 1/2" Tape Ctlr. (1600 BPI)
501-1155 Xylogics 472 1/2" Tape Ctlr. (6250 BPI)

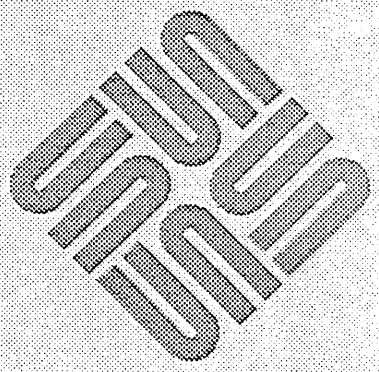
501-1138 Sun-2 SCSI Ctlr.
501-1217 Sun-3 SCSI Ctlr.

501-1154 Xylogics 450 SMD Ctlr.
501-1166 Xylogics 451 SMD Ctlr.

501-1014 Sun-2 Color
501-1116 Sun-3 (CG3) Color
501-1267 Sun CG5 Color

3

Sun-3/200 Product Family



3

Sun-3/200 Product Family

3.1. Sun-3/260X

Table 3-1 *Sun-3/260X*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
P X 0 3	P X 0 4		1	# 2	# 3	# 4	# 5	6	7	8	9	# 10	# 11	# 12
OUT	OUT	Sun 3200 CPU Board†	A											
IN	IN	1st 501-1102 Sun Mem Board@						A						
IN	IN	2nd 501-1102 Sun Mem Board@				A								
IN	IN	3rd 501-1102 Sun Mem Board@			A									
IN	IN	4th 501-1102 Sun Mem Board@		A										
IN	IN	501-1105 Sun FPA					A							
OUT	OUT	Sun GP †∇										A		
IN	IN	501-1058 Sun GB #											A	
IN	IN	501-1383 TAAC-1 ‡										A	‡	‡
OUT	N/A**	501-1157 Sun ALM-1 ** # ∞											**	A
OUT	OUT	Sun VME SCSI Ctlr †							A					
OUT	OUT	1st 501-1158 Sun SCP*#		D	A	B	C		E	F				
OUT	OUT	2nd 501-1158 Sun SCP*#		C		A	B		D	E	F			
OUT	OUT	1st 501-1221 MCP Board *∞		D	A	B	C		E	F	G	H	I	J
OUT	OUT	2nd 501-1221 MCP Board *∞		C		A	B		D	E	F	G	H	I
OUT	OUT	3rd 501-1221 MCP Board *∞		B			A		C	D	E	F	G	H
OUT	OUT	4th 501-1221 MCP Board *∞		A					B	C	D	E	F	G
OUT	OUT	1st 501-1203 ALM-2 Board ∞		D	A	B	C		E	F	G	H	I	J
OUT	OUT	2nd 501-1203 ALM-2 Board ∞		C		A	B		D	E	F	G	H	I

Table 3-1 *Sun-3/260X— Continued*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*												
BG3	IACK														
P X 0 3	P X 0 4		1	# 2	# 3	# 4	# 5	6	7	8	9	# 10	# 11	# 12
OUT	OUT	3rd 501-1203 ALM-2 Board ∞		B			A		C	D	E	F	G	H
OUT	OUT	4th 501-1203 ALM-2 Board ∞		A					B	C	D	E	F	G
OUT	OUT	1st 370-1128 SunLink Channel Adapter *∂		A	A B	C B	C		D	D E	F E	F G	H G	H
OUT	OUT	2nd 370-1128 SunLink Channel Adapter *∂				A	A		B	B C	D C	D E	F E	F
§	§	1st 501-1202 MAPKIT§*		A	A B	C B	C		D	D E	F E	F G	H G	H
§	§	2nd 501-1202 MAPKIT§*				A	A		B	B C	D C	D E	F E	F
OUT	OUT	501-1153 2nd Ethr Ctlr ∈#		D	A	B	C		E	F	G	H	I	J
IN	OUT	1st 501-1125 Sun IPC*		D	A	B	C		E	F	G	H	I	J
IN	OUT	2nd 501-1125 Sun IPC*		C		A	B		D	E	F	G	H	I
IN	OUT	3rd 501-1125 Sun IPC*		B			A		C	D	E	F	G	H
IN	OUT	4th 501-1125 Sun IPC*		A					B	C	D	E	F	G
OUT	OUT	1st 1/2" Tape Ctlr†#							A	B	C	D	E	F
OUT	OUT	2nd 1/2" Tape Ctlr†#								A	B	C	D	E
OUT	OUT	1st SMD Ctlr†#&							A	B	C	D	E	F
OUT	OUT	2nd SMD Ctlr†#&								A	B	C	D	E
IN	OUT	Sun VME Color †√∇		J	A	B	C		D	E	F	G	H	I

FOR SYSTEMS WITHOUT A SUN SCSI OPTION:

If your system DOES NOT have SCSI Adapter, please use Table 3-2 — *Sun-3/280S Using the External SCSI Bus Sun-3 501-1191 VME Adapter*.

GENERAL NOTES:

This table vertically lists PCB slot priority assignments for the Sun-3/260C/260HM/260G/260S in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred location for the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

1. The order of the cardcage slots for the 12-slot deskside pedestal is slot 1 is left-most and slot 12 is right-most when viewing the pedestal from the side where the boards are installed/removed from the cardcage.
2. FOR ALL SLOTS: Install backplane jumpers in locations PX00, PX01 and PX02."X" represents the slot number.
3. TO INSTALL ANY BOARD: Configure backplane jumpers PX03 and PX04 per the above table. "X" represents the slot number.
4. TO REMOVE ANY BOARD: Install for the affected slot: backplane jumpers at locations PX03 & PX04, outside filler panel and air flow restricter. P1204 for Slot 12 does not physically exist on the backplane.
5. DO NOT INSTALL an air restrictor in Slot 2 when a board is not installed there.
6. The Sun 3X2 VME Adapter Boards for the Sun SCSI Controller are not architecture-dependent. They have the following descriptions:
   - 501-1059 Sun-2 3X2 Adapter has P2 bus connections. It is Option 160A in the Sun sales catalog.
   - 501-1191 Sun-3 3X2 Adapter does not have P2 bus connections. It is Option 160B in the Sun sales catalog.
7. NON-MEMORY/FPA BOARD OPTIONS THAT MAY INSTALL INTO SLOT 2: For slots 2 through 5, non-memory board options should not be loaded using the standard left to right sequence. Keeping slot 2 empty until absolutely necessary to fill it assists with the cooling of the Sun-3/260 CPU board. However, slot 2 of the cardcage must be populated with a board when
   - all 12 slots are used, OR
   - throughput functionality of a board option is affected due to a different option board, which appears lower on the table list, is loaded into slot 2, OR
   - throughput functionality of a board option is affected by the board being placed to the right of the fixed-position Sun VME SCSI Controller.

   In these cases, the board installed into slot 2 must be the first board that would otherwise go into the first open slot to the right of slot 2.

These notes refer to symbols, such as "†" or "‡", on the slot assignment table for the Sun-3/260C/260HM/260G/260S.

∞ **Important Notes about ALM and MCP products:**

1. Because of the release of the Sun-ALM-2, references to Sun's previously released product, known only as the ALM, have now been changed. The ALM will now be referred to as the Sun-ALM-1.
2. If you are using the ALM-2 with the MCP or ALM-1, please see Appendix A, *Notes Regarding the ALM-2 and MCP Products.*

∂ **Important Cautions about the SunLink Channel Adapter:**

1. Each Channel Adapter assembly occupies two slots. The **BG3** and **IACK** backplane jumpers *must* be removed for *both slots.*
2. If after selecting a slot for the Channel Adapter assembly an unused slot exists between the CPU (Slot 1) and the Adapter, neither a 1/2 inch Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the Channel Adapter's data throughput rate may be affected.

@ **For Sun Memory Boards:**

1. FOR SLOT 6: A Memory Board must ALWAYS reside in Slot 6, and it MUST have 220/270Ω Terminating Resistor Network, Sun P/N 120-1613, installed at location 34-F for P2 bus termination.
2. FOR MEMORY BOARD INSTALLATION IN SLOTS 2,3, or 4: Remove the Terminating Resistor Network from location 34-F.

* Consult your Sun sales office concerning software considerations for and availability of this unbundled product.

∈ The "2nd Ethr Ctlr" board is the interface for the second Ethernet network. The interface for the first network resides on the CPU board.

§ **Notes about the MAPKIT option:**

1. Each MAPKIT option occupies two slots. The "BG3" and "IACK" jumpers on the backplane are OUT for the slot that contains the MAPKIT board nearest slot 1 (far left when facing system rear) and are IN for the other slot.
2. If after selecting a slot for the MAPKIT option an unused slot exists between the CPU (slot 1) and the MAPKIT, neither a 1/2" Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the MAPKIT's throughput rate may be affected.

√ The 501-1014 Sun-2 Color board may be transferred from another system and used in place of the 501-1116 Sun CG3 Color board. Note that the Sun-2 Color board is no longer available when ordering new Sun systems.

∇ **When installing the 501-1268 Graphics Processor 2 (GP2):** The Graphics Processor 2 will not function with the following options are installed.

501-1058 Graphics Buffer
501-1116 Sun-3 Color Board (CG3)
501-1014 Sun-2 Color Board

∇ **When installing the 501-1267 CG5 Color Board *with* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The Graphics Processor 2 (GP2) communicates with the CG5 over a private P2 bus which MUST BE ENABLED on the CG5 board by a hardware switch setting. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.
2. The CG5 board can only be installed in slots 11(A) and 12(B) where (A) and (B) denote slot priority. (A) denotes the highest priority and (B) denotes the next highest priority.
3. Since the 501-1157 Sun ALM-1 consumes two slot spaces (slots 11 and 12), it cannot be used with any multiple board graphics options.

∇ **When installing the 501-1267 CG5 Color Board *without* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The 501-1267 CG5 Color Board may be used in place of the 501-1116 Sun-3 CG3 Color Board. If you are installing the CG5 board with either the 501-1055 Graphics Processor or the 501-1268 Graphics Processor Plus, the CG5 board MUST BE installed in slots 2-9 only.
2. The CG5 board MUST HAVE its private P2 bus disabled when the 501-1268 Graphics Processor 2 (GP2) is **not** installed. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.

‡ Since the 501-1383 TAAC-1 consumes three slot spaces, TO INSTALL IT, YOU MUST REMOVE any board already residing in slots 10, 11, and 12 and install jumpers at locations P1103, P1104, and P1203 on the backplane.

** **Since the 501-1157 Sun ALM-1 consumes two slot spaces, TO INSTALL IT, YOU MUST:**

1. REMOVE any board already residing in slot 11 and install jumpers at locations P1103 and P1104 on the backplane;
2. REMOVE any outside filler panel(s) covering slots 11 and 12;
3. REMOVE any air restrictors installed in these slots.

Notes about installing a VME-to-Multibus Adapter Board based product:

1. FOR SLOTS 2 THROUGH 5: If you wish to install a ''VME-to-Multibus Adapter Board'' based product (such as the SCP), you MUST USE adapter board subassembly Revision 501-1054-04, Rev A or later to avoid signal contention on the ''P2 Memory'' bus.
2. FOR SLOTS 11 AND 12: If any combination of Graphics option boards is installed in slots 10 and 11 and you wish to install a "VME to Multibus Adapter Board" based product, you MUST USE Adapter board subassembly revision 501-1054-04 REV A or later to avoid signal contention on the "GP/GB" bus.

& The 501-1154 Xylogics 450 SMD Controller is a valid alternative when it is transferred from another system. The Xylogics 450-based products are not available when ordering new Sun-3/200 Series systems.

† These boards have one of the following descriptions:

501-1100 CPU Board
501-1206 CPU Board

501-1055 Graphics Processor
501-1139 Graphics Processor Plus
501-1268 Graphics Processor 2

501-1156 CPC 1/2" Tape Ctlr. (1600 BPI)
501-1155 Xylogics 472 1/2" Tape Ctlr. (6250 BPI)

501-1154 Xylogics 450 SMD Ctlr.
501-1166 Xylogics 451 SMD Ctlr.

501-1149 Sun-2 SCSI Ctlr.
501-1170 Sun-3 SCSI Ctlr.

501-1014 Sun-2 Color
501-1116 Sun-3 (CG3) Color
501-1267 Sun CG5 Color

3.2. Sun-3/280S Using the External SCSI Bus Sun-3 501-1191 SCSI VME Adapter

Table 3-2 *Sun-3/280S Using the External SCSI Bus Sun-3 501-1191 VME Adapter*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
PX03	PX04		1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
OUT	OUT	Sun 3200 CPU Board†	A											
IN	IN	1st 501-1102 Sun Mem Board@						A						
IN	IN	2nd 501-1102 Sun Mem Board@		A										
IN	IN	3rd 501-1102 Sun Mem Board@			A									
IN	IN	4th 501-1102 Sun Mem Board@				A								
IN	IN	501-1105 Sun FPA					A							
OUT	OUT	Sun GP† ∇										A		
IN	IN	501-1058 Sun GB #											A	
IN	IN	501-1383 TAAC-1 ‡										A	‡	‡
OUT	N/A	1st 501-1165 Sun ALM-1# ∞												A
OUT	OUT	2nd 501-1165 Sun ALM-1# ∞											A	
OUT	OUT	3rd 501-1165 Sun ALM-1# ∞										A		
OUT	OUT	1st 501-1158 Sun SCP*#		A	B	C	D		E					
OUT	OUT	2nd 501-1158 Sun SCP*#			A	B	C		D	E				
OUT	OUT	1st 501-1221 MCP Board *∞		A	B	C	D		E	F	G			
OUT	OUT	2nd 501-1221 MCP Board *∞			A	B	C		D	E	F	G	H	I
OUT	OUT	3rd 501-1221 MCP Board *∞				A	B		C	D	E	F	G	H
OUT	OUT	4th 501-1221 MCP Board *∞					A		B	C	D	E	F	G
OUT	OUT	1st 501-1203 ALM-2 Board ∞		A	B	C	D		E	F	G	H	I	J
OUT	OUT	2nd 501-1203 ALM-2 Board ∞			A	B	C		D	E	F	G	H	I
OUT	OUT	3rd 501-1203 ALM-2 Board ∞				A	B		C	D	E	F	G	H
OUT	OUT	4th 501-1203 ALM-2 Board ∞					A		B	C	D	E	F	G
OUT	OUT	1st 370-1128 SunLink Channel Adapter *∂		A	A B	C B	C		D	D E	F E	F G	H G	H
OUT	OUT	2nd 370-1128 SunLink Channel Adapter *∂				A	A		B	B C	D C	D E	F E	F

Table 3-2 *Sun-3/280S Using the External SCSI Bus Sun-3 501-1191 VME Adapter— Continued*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
PX03	PX04		1	#2	#3	#4	#5	6	7	8	9	#10	#11	#12
§	§	1st 501-1202 MAPKIT§*		A	A B	C B	C		D	D E	F E	F	G	G
§	§	2nd 501-1202 MAPKIT§*				A	A		B	B C	D C	D E	F E	F
OUT	OUT	Sun VME SCSI Ctlr †		A	B	C	D		E	F	G	H	I	J
IN	OUT	Sun VME Color†√		A	B	C	D		E	F	G	H	I	J
OUT	OUT	501-1153 2nd Ethr Ctlr ∈#		A	B	C	D		E	F	G	H	I	J
IN	OUT	1st 501-1125 Sun IPC*		A	B	C	D		E	F	G	H	I	J
IN	OUT	2nd 501-1125 Sun IPC*			A	B	C		D	E	F	G	H	I
IN	OUT	3rd 501-1125 Sun IPC*				A	B		C	D	E	F	G	H
IN	OUT	4th 501-1125 Sun IPC*					A		B	C	D	E	F	G
OUT	OUT	1st 1/2" Tape Ctlr#†		A	B	C	D		E	F	G	H	I	J
OUT	OUT	2nd 1/2" Tape Ctlr#†			A	B	C		D	E	F	G	H	I
OUT	OUT	1st SMD Ctlr#†&		A	B	C	D		E	F	G	H	I	J
OUT	OUT	2nd SMD Ctlr#†&			A	B	C		D	E	F	G	H	I

FOR SYSTEMS WITHOUT A SUN SCSI OPTION: If your system DOES NOT have SCSI Adapter, please use this table.

GENERAL NOTES:

This table vertically lists PCB slot priority assignments for the Sun-3/280S (with Sun-3 3X2 Adapter 501-1191) in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred locationfor the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

1. Slot numbers are labeled on the cardcage sheet metal near the top card ejectors.
2. FOR ALL SLOTS: Install backplane jumpers in locations PX00, PX01 and PX02."X" represents the slot number.
3. TO INSTALL ANY BOARD: Configure backplane jumpers PX03 and PX04 per the above table. "X" represents the slot number.

4. TO REMOVE ANY BOARD: Install for the affected slot: backplane jumpers at locations PX03 & PX04, outside filler panel and air flow restricter. P1204 for Slot 12 does not physically exist on the backplane.
5. The Sun 3X2 VME Adapter Boards for the Sun SCSI Controller are not architecture-dependent. They have the following descriptions:
   - 501-1059 Sun-2 3X2 Adapter has P2 bus connections. It is Option 160A in the Sun sales catalog.
   - 501-1191 Sun-3 3X2 Adapter does not have P2 bus connections. It is Option 160B in the Sun sales catalog.

These notes refer to symbols, such as "†" or "‡", on the slot assignment table for the Sun-3/280S with 501-1191 Adapter.

∞ **Important Notes about ALM and MCP products:**

1. Because of the release of the Sun-ALM-2, references to Sun's previously released product, known only as the ALM, have now been changed. The ALM will now be referred to as the Sun-ALM-1.
2. If you are using the ALM-2 with the MCP or ALM-1, please see Appendix A, *Notes Regarding the ALM-2 and MCP Products.*

∂ **Important Cautions about the SunLink Channel Adapter:**

1. Each Channel Adapter assembly occupies two slots. The **BG3** and **IACK** backplane jumpers *must* be removed for *both* slots.
2. If after selecting a slot for the Channel Adapter assembly an unused slot exists between the CPU (Slot 1) and the Adapter, neither a 1/2 inch Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the Channel Adapter's data throughput rate may be affected.

@ **For Sun Memory Boards:**

1. FOR SLOT 6: A Memory Board must ALWAYS reside in Slot 6, and it MUST have 220/270Ω Terminating Resistor Network, Sun P/N 120-1613, installed at location 34-F for P2 bus termination.
2. FOR MEMORY BOARD INSTALLATION IN SLOTS 2,3, or 4: Remove the Terminating Resistor Network from location 34-F.

* Consult your Sun sales office concerning software considerations for and availability of this unbundled product.

∈ The "2nd Ethr Ctlr" board is the interface for the second Ethernet network. The interface for the first network resides on the CPU board.

Notes about installing a VME-to-Multibus Adapter Board based product:

1. FOR SLOTS 2 THROUGH 5: If you wish to install a "VME-to-Multibus Adapter Board" based product (such as the SCP), you MUST USE adapter board subassembly Revision 501-1054-04, Rev A or later to avoid signal contention on the "P2 Memory" bus.
2. FOR SLOTS 11 AND 12: If any combination of Graphics option boards is installed in slots 10 and 11 and you wish to install a "VME to Multibus Adapter Board" based product, you MUST USE Adapter board subassembly revision 501-1054-04 REV A or later to avoid signal contention on the "GP/GB" bus.

§ **Notes about the MAPKIT option:**

1. Each MAPKIT option occupies two slots. The "BG3" and "IACK" jumpers on the backplane are OUT for the slot that contains the MAPKIT board nearest slot 1 (far left when facing system rear) and are IN for the other slot.

2. If after selecting a slot for the MAPKIT option an unused slot exists between the CPU (slot 1) and the MAPKIT, neither a 1/2" Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the MAPKIT's throughput rate may be affected.

‡ Since the 501-1383 TAAC-1 consumes three slot spaces, TO INSTALL IT, YOU MUST REMOVE any board already residing in slots 10, 11, and 12 and install jumpers at locations P1103, P1104, and P1203 on the backplane.

√ The 501-1014 Sun-2 Color board may be transferred from another system and used in place of the 501-1116 Sun-3 Color board. Note that the Sun-2 Color board is no longer available when ordering new Sun systems.

∇ **When installing the 501-1268 Graphics Processor 2 (GP2):** The Graphics Processor 2 will not function with the following options are installed.

501-1058 Graphics Buffer
501-1116 Sun-3 Color Board (CG3)
501-1014 Sun-2 Color Board

∇ **When installing the 501-1267 CG5 Color Board *with* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The Graphics Processor 2 (GP2) communicates with the CG5 over a private P2 bus which MUST BE ENABLED on the CG5 board by a hardware switch setting. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.

2. The CG5 board can only be installed in slots 11(A) and 12(B) where (A) and (B) denote slot priority. (A) denotes the highest priority and (B) denotes the next highest priority.

∇ **When installing the 501-1267 CG5 Color Board *without* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The 501-1267 CG5 Color Board may be used in place of the 501-1116 Sun-3 CG3 Color Board. If you are installing the CG5 board with either the 501-1055 Graphics Processor or the 501-1268 Graphics Processor Plus, the CG5 board MUST BE installed in slots 2-9 only.

2. The CG5 board MUST HAVE its private P2 bus disabled when the 501-1268 Graphics Processor 2 (GP2) is **not** installed. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.

& The 501-1154 Xylogics 450 SMD Controller is a valid alternative when transferred from another system. The Xylogics 450-based products are not available when ordering new Sun-3/200 Series products.

† These boards have one of the following descriptions:

501-1100 CPU Board
501-1206 CPU Board

501-1055 Graphics Processor
501-1139 Graphics Processor Plus
501-1268 Graphics Processor 2

501-1156 CPC 1/2" Tape Ctlr. (1600 BPI)
501-1155 Xylogics 472 1/2" Tape Ctlr. (6250 BPI)

501-1138 Sun-2 SCSI Ctlr.
501-1217 Sun-3 SCSI Ctlr.

501-1154 Xylogics 450 SMD Ctlr.
501-1166 Xylogics 451 SMD Ctlr.

501-1014 Sun-2 Color
501-1116 Sun-3 (CG3) Color
501-1267 Sun CG5 Color

3.3. Sun-3/280S Using the Sun-2 501-1167 SCSI Host Adapter

Table 3-3 *Sun-3/280S Using the Sun-2 501-1167 SCSI Host Adapter*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
PX03	PX04		1	#2	#3	#4	#5	6	7	8	9	#10	#11	#12
OUT	OUT	Sun 3200 CPU Board†	A											
IN	IN	1st 501-1102 Sun Mem Board@						A						
IN	IN	2nd 501-1102 Sun Mem Board@		A										
IN	IN	3rd 501-1102 Sun Mem Board@			A									
IN	IN	4th 501-1102 Sun Mem Board@				A								
IN	IN	501-1105 Sun FPA					A							
OUT	OUT	Sun GP† ∇										A		
IN	IN	501-1058 Sun GB #											A	
IN	IN	501-1383 TAAC-1 ‡										A	‡	‡
OUT	N/A	1st 501-1165 Sun ALM-1# ∞												A
OUT	OUT	2nd 501-1165 Sun ALM-1# ∞											A	
OUT	OUT	3rd 501-1165 Sun ALM-1# ∞										A		
OUT	OUT	501-1167 Sun-2 SCSI Ctlr ++							A					
OUT	OUT	1st 501-1158 Sun SCP*#		A	B	C	D			E				
OUT	OUT	2nd 501-1158 Sun SCP*#			A	B	C			D	E			
OUT	OUT	1st 501-1221 MCP Board *∞		A	B	C	D			E	F	G	H	I
OUT	OUT	2nd 501-1221 MCP Board *∞			A	B	C			D	E	F	G	H
OUT	OUT	3rd 501-1221 MCP Board *∞				A	B			C	D	E	F	G
OUT	OUT	4th 501-1221 MCP Board *∞					A			B	C	D	E	F
OUT	OUT	1st 501-1203 ALM-2 Board ∞		A	B	C	D			E	F	G	H	I
OUT	OUT	2nd 501-1203 ALM-2 Board ∞			A	B	C			D	E	F	G	H
OUT	OUT	3rd 501-1203 ALM-2 Board ∞				A	B			C	D	E	F	G
OUT	OUT	4th 501-1203 ALM-2 Board ∞					A			B	C	D	E	F
OUT	OUT	1st 370-1128 SunLink Channel Adapter *∂		A	A B	C B	C			D	D E	F E	F G	G
OUT	OUT	2nd 370-1128 SunLink Channel Adapter *∂				A	A			B	B C	D C	D E	E

Table 3-3 *Sun-3/280S Using the Sun-2 501-1167 SCSI Host Adapter— Continued*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
PX03	PX04		1	#2	#3	#4	#5	6	7	8	9	#10	#11	#12
§	§	1st 501-1202 MAPKIT§*		A	A	C	C			D	D	F	F	
§	§	1st 501-1202 MAPKIT, cont.§*					B	B					E	E
§	§	2nd 501-1202 MAPKIT§*				A	A			B	B C	D C	D E	E
IN	OUT	Sun VME Color†√∇		A	B	C	D			E	F	G	H	I
OUT	OUT	501-1153 2nd Ethr Ctlr ∈#		A	B	C	D			E	F	G	H	I
IN	OUT	1st 501-1125 Sun IPC*		A	B	C	D			E	F	G	H	I
IN	OUT	2nd 501-1125 Sun IPC*			A	B	C			D	E	F	G	H
IN	OUT	3rd 501-1125 Sun IPC*				A	B			C	D	E	F	G
IN	OUT	4th 501-1125 Sun IPC*					A			B	C	D	E	F
OUT	OUT	1st 1/2" Tape Ctlr#†								A	B	C	D	E
OUT	OUT	2nd 1/2" Tape Ctlr#†									A	B	C	D
OUT	OUT	1st SMD Ctlr#&†								A	B	C	D	E
OUT	OUT	2nd SMD Ctlr#&†									A	B	C	D

FOR SYSTEMS WITHOUT A SUN SCSI OPTION:

If your system DOES NOT have SCSI Adapter, please use Table 3-2 — *Sun-3/280S Using the External SCSI Bus Sun-3 501-1191 VME Adapter*.

GENERAL NOTES:

This table vertically lists PCB slot priority assignments for the Sun-3/280S (with Sun-2 3X2 Adapter 501-1059) in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred locationfor the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

1. Slot numbers are labeled on the cardcage sheet metal near the top card ejectors.
2. FOR ALL SLOTS: Install backplane jumpers in locations PX00, PX01 and PX02."X" represents the slot number.
3. TO INSTALL ANY BOARD: Configure backplane jumpers PX03 and PX04 per the above table. "X" represents the slot number.

4. TO REMOVE ANY BOARD: Install for the affected slot: backplane jumpers at locations PX03 & PX04, outside filler panel and air flow restricter. P1204 for Slot 12 does not physically exist on the backplane.
5. The Sun 3X2 VME Adapter Boards for the Sun SCSI Controller are not architecture-dependent. The Adapters have the following descriptions:
   - 501-1059 Sun-2 3X2 Adapter has P2 bus connections. It is Option 160A in the Sun sales catalog.
   - 501-1191 Sun-3 3X2 Adapter does not have P2 bus connections. It is Option 160B in the Sun sales catalog.

These notes refer to symbols, such as "†" or "‡", on the slot assignment table for the Sun-3/280S with 501-1059 Adapter.

++ The Adapter for the 501-1167 Sun-2 SCSI Ctlr has both P2 and external cable connections. Sun is not supporting the Sun-3 SCSI Ctlr on this type of Adapter.

∞ **Important Notes about ALM and MCP products:**

1. Because of the release of the Sun-ALM-2, references to Sun's previously released product, known only as the ALM, have now been changed. The ALM will now be referred to as the Sun-ALM-1.
2. If you are using the ALM-2 with the MCP or ALM-1, please see Appendix A, *Notes Regarding the ALM-2 and MCP Products.*

∂ **Important Cautions about the SunLink Channel Adapter:**

1. Each Channel Adapter assembly occupies two slots. The **BG3** and **IACK** backplane jumpers *must* be removed for *both* slots.
2. If after selecting a slot for the Channel Adapter assembly an unused slot exists between the CPU (Slot 1) and the Adapter, neither a 1/2 inch Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the Channel Adapter's data throughput rate may be affected.

@ **For Sun Memory Boards:**

1. FOR SLOT 6: A Memory Board must ALWAYS reside in Slot 6, and it MUST have 220/270 Ω Terminating Resistor Network, Sun P/N 120-1613, installed at location 34-F for P2 bus termination.
2. FOR MEMORY BOARD INSTALLATION IN SLOTS 2,3, or 4: Remove the Terminating Resistor Network from location 34-F.

* Consult your Sun sales office concerning software considerations for and availability of this unbundled product.

∈ The "2nd Ethr Ctlr" board is the interface for the second Ethernet network. The interface for the first network resides on the CPU board.

Notes about installing a VME-to-Multibus Adapter Board based product:

1. FOR SLOTS 2 THROUGH 5: If you wish to install a "VME-to-Multibus Adapter Board" based product (such as the SCP), you MUST USE adapter board subassembly Revision 501-1054-04, Rev A or later to avoid signal contention on the "P2 Memory" bus.
2. FOR SLOTS 11 AND 12: If any combination of Graphics option boards is installed in slots 10 and 11 and you wish to install a "VME to Multibus Adapter Board" based product, you MUST USE Adapter board subassembly revision 501-1054-04 REV A or later to avoid signal contention on the "GP/GB" bus.

‡ Since the 501-1383 TAAC-1 consumes three slot spaces, TO INSTALL IT, YOU MUST REMOVE any board already residing in slots 10, 11, and 12 and install jumpers at locations P1103, P1104, and P1203 on the backplane.

§ **Notes about the MAPKIT option:**

1. Each MAPKIT option occupies two slots. The "BG3" and "IACK" jumpers on the backplane are OUT for the slot that contains the MAPKIT board nearest slot 1 (far left when facing system rear) and are IN for the other slot.
2. If after selecting a slot for the MAPKIT option an unused slot exists between the CPU (slot 1) and the MAPKIT, neither a 1/2" Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the MAPKIT's throughput rate may be affected.

√ The 501-1014 Sun-2 Color board may be transferred from another system and used in place of the 501-1116 Sun-3 Color board. Note that the Sun-2 Color board is no longer available when ordering new Sun systems.

∇ **When installing the 501-1268 Graphics Processor 2 (GP2):** The Graphics Processor 2 will not function with the following options are installed.

501-1058 Graphics Buffer
501-1116 Sun-3 Color Board (CG3)
501-1014 Sun-2 Color Board

∇ **When installing the 501-1267 CG5 Color Board *with* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The Graphics Processor 2 (GP2) communicates with the CG5 over a private P2 bus which MUST BE ENABLED on the CG5 board by a hardware switch setting. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.
2. The CG5 board can only be installed in slots 11(A) and 12(B) where (A) and (B) denote slot priority. (A) denotes the highest priority and (B) denotes the next highest priority.

∇ **When installing the 501-1267 CG5 Color Board *without* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. If you are installing the CG5 board with either the 501-1055 Graphics Processor or the 501-1268 Graphics Processor Plus, the CG5 board MUST BE installed in slots 2-9 only.
2. The CG5 board MUST HAVE its private P2 bus disabled when the 501-1268 Graphics Processor 2 (GP2) is **not** installed. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.

& The 501-1154 Xylogics 450 SMD Controller is a valid alternative when transferred from another system. The Xylogics 450-based products are not available when ordering new Sun-3/200 Series products.

† These boards have one of the following descriptions:

501-1100 CPU Board
501-1206 CPU Board

501-1055 Graphics Processor
501-1139 Graphics Processor Plus
501-1268 Graphics Processor 2

501-1156 CPC 1/2" Tape Ctlr. (1600 BPI)
501-1155 Xylogics 472 1/2" Tape Ctlr. (6250 BPI)

501-1154 Xylogics 450 SMD Ctlr.
501-1166 Xylogics 451 SMD Ctlr.

501-1014 Sun-2 Color
501-1116 Sun-3 (CG3) Color
501-1267 Sun CG5 Color

3.4. Sun-3/280S with Reserved Slots and Sun-3 501-1191 SCSI VME Adapter

Table 3-4 *Sun-3/280S with Reserved Slots and Sun-3 501-1191 SCSI VME Adapter*

Note: This table reserves slots 7, 8 and 9 for non-Sun boards that have signals on the "P2" bus.

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
P X 0 3	P X 0 4		1	# 2	# 3	# 4	# 5	6	7	8	9	# 10	# 11	# 12
OUT	OUT	Sun 3200 CPU Board†	A											
IN	IN	1st 501-1102 Sun Mem Board@						A						
IN	IN	2nd 501-1102 Sun Mem Exp@		A										
IN	IN	3rd 501-1102 Sun Mem Exp@			A									
IN	IN	4th 501-1102 Sun Mem Exp@				A								
IN	IN	501-1105 Sun FPA					A							
OUT	OUT	Sun GP† ∇										A		
IN	IN	501-1058 Sun GB #											A	
IN	IN	501-1383 TAAC-1 ‡										A	‡	‡
OUT	N/A	1st 501-1165 Sun ALM-1# ∞												A
OUT	OUT	2nd 501-1165 Sun ALM-1# ∞											A	
OUT	OUT	3rd 501-1165 Sun ALM-1# ∞										A		
OUT	OUT	1st 501-1158 Sun SCP*#		A	B	C	D					E	F	G
OUT	OUT	2nd 501-1158 Sun SCP*#			A	B	C					D	E	F
OUT	OUT	1st 501-1221-01 MCP Board *∞		A	B	C	D					E	F	G
OUT	OUT	2nd 501-1221-01 MCP Board *∞			A	B	C					D	E	F
OUT	OUT	3rd 501-1221-01 MCP Board *∞				A	B					C	D	E
OUT	OUT	4th 501-1221-01 MCP Board *∞					A					B	C	D
OUT	OUT	1st 501-1203 ALM-2 Board ∞		A	B	C	D					E	F	G
OUT	OUT	2nd 501-1203 ALM-2 Board ∞			A	B	C					D	E	F
OUT	OUT	3rd 501-1203 ALM-2 Board ∞				A	B					C	D	E
OUT	OUT	4th 501-1203 ALM-2 Board ∞					A					B	C	D
OUT	OUT	1st 370-1128 SunLink Channel Adapter *∂		A	A B	C B	C					D	D E	E

Table 3-4 *Sun-3/280S with Reserved Slots and Sun-3 501-1191 VME Adapter— Continued*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3 PX03	IACK PX04		1	#2	#3	#4	#5	6	7	8	9	#10	#11	#12
OUT	OUT	2nd 370-1128 SunLink Channel Adapter *∂				A	A					B	B C	C
§	§	1st 501-1202 MAPKIT§*		A	A	C	C					D	D	
§	§	1st 501-1202 MAPKIT, cont.§*					B	B						
§	§	2nd 501-1202 MAPKIT§*				A	A					B	B C	C
OUT	OUT	Sun VME SCSI Ctlr †		A	B	C	D					E	F	G
IN	OUT	Sun VME Color†√∇		A	B	C	D					E	F	G
OUT	OUT	501-1153 2nd Ethr Ctlr ∈#		A	B	C	D					E	F	G
IN	OUT	1st 501-1125 Sun IPC*		A	B	C	D					E	F	G
IN	OUT	2nd 501-1125 Sun IPC*			A	B	C					D	E	F
IN	OUT	3rd 501-1125 Sun IPC*				A	B					C	D	E
IN	OUT	4th 501-1125 Sun IPC*					A					B	C	D
OUT	OUT	1st 1/2" Tape Ctlr#†		A	B	C	D					E	F	G
OUT	OUT	2nd 1/2" Tape Ctlr#†			A	B	C					D	E	F
OUT	OUT	1st SMD Ctlr#†&		A	B	C	D					E	F	G
OUT	OUT	2nd SMD Ctlr#†&			A	B	C					D	E	F

GENERAL NOTES:

This table vertically lists PCB slot priority assignments for the Sun-3/280S (with reserved slots for non-Sun boards) in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred locationfor the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

1. Slot numbers are labeled on the cardcage sheet metal near the top card ejectors.
2. FOR ALL SLOTS: Install backplane jumpers in locations PX00, PX01 and PX02."X" represents the slot number.
3. TO INSTALL ANY BOARD: Configure backplane jumpers PX03 and PX04 per the above table. "X" represents the slot number.
4. TO REMOVE ANY BOARD: Install for the affected slot: backplane jumpers at locations PX03 & PX04, outside filler panel and air flow restricter. P1204 for Slot 12 does not physically exist on the backplane.

5. The Sun 3X2 VME Adapter Boards for the Sun SCSI Controller are not architecture-dependent. They have the following descriptions:
   - 501-1059 Sun-2 3X2 Adapter has P2 bus connections. It is Option 160A in the Sun sales catalog.
   - 501-1191 Sun-3 3X2 Adapter does not have P2 bus connections. It is Option 160B in the Sun sales catalog.

These notes refer to symbols on the slot assignment table for the Sun-3/280S using the Sun-3 3x2 Adapter (501-1191) for the SCSI Controller, with slots 7, 8 and 9 reserved for non-Sun boards that have "P2" bus signals.

∞ **Important Notes about ALM and MCP products:**

1. Because of the release of the Sun-ALM-2, references to Sun's previously released product, known only as the ALM, have now been changed. The ALM will now be referred to as the Sun-ALM-1.
2. If you are using the ALM-2 with the MCP or ALM-1, please see Appendix A, *Notes Regarding the ALM-2 and MCP Products.*

∂ **Important Cautions about the SunLink Channel Adapter:**

1. Each Channel Adapter assembly occupies two slots. The **BG3** and **IACK** backplane jumpers *must* be removed for *both* slots.
2. If after selecting a slot for the Channel Adapter assembly an unused slot exists between the CPU (Slot 1) and the Adapter, neither a 1/2 inch Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the Channel Adapter's data throughput rate may be affected.

@ **For Sun Memory Boards:**

1. FOR SLOT 6: A Memory Board must ALWAYS reside in Slot 6, and it MUST have 220/270Ω Terminating Resistor Network, Sun P/N 120-1613, installed at location 34-F for P2 bus termination.
2. FOR MEMORY BOARD INSTALLATION IN SLOTS 2,3, or 4: Remove the Terminating Resistor Network from location 34-F.

* Consult your Sun sales office concerning software considerations for and availability of this unbundled product.

∈ The "2nd Ethr Ctlr" board is the interface for the second Ethernet network. The interface for the first network resides on the CPU board.

Notes about installing a VME-to-Multibus Adapter Board based product:

1. FOR SLOTS 2 THROUGH 5: If you wish to install a "VME-to-Multibus Adapter Board" based product (such as the SCP), you MUST USE adapter board subassembly Revision 501-1054-04, Rev A or later to avoid signal contention on the "P2 Memory" bus.
2. FOR SLOTS 11 AND 12: If any combination of Graphics option boards is installed in slots 10 and 11 and you wish to install a "VME to Multibus Adapter Board" based product, you MUST USE Adapter board subassembly revision 501-1054-04 REV A or later to avoid signal contention on the "GP/GB" bus.

‡ Since the 501-1383 TAAC-1 consumes three slot spaces, TO INSTALL IT, YOU MUST REMOVE any board already residing in slots 10, 11, and 12 and install jumpers at locations P1103, P1104, and P1203 on the backplane.

§ **Notes about the MAPKIT option:**

1. Each MAPKIT option occupies two slots. The "BG3" and "IACK" jumpers on the backplane are OUT for the slot that contains the MAPKIT board nearest slot 1 (far left when facing system rear) and are IN for the other slot.

2. If after selecting a slot for the MAPKIT option an unused slot exists between the CPU (slot 1) and the MAPKIT, neither a 1/2" Tape Controller nor an SMD Disk Controller may occupy this empty slot. If this advice is not followed, the MAPKIT's throughput rate may be affected.

√ The 501-1014 Sun-2 Color board may be transferred from another system and used in place of the 501-1116 Sun-3 Color board. Note that the Sun-2 Color board is no longer available when ordering new Sun systems.

& The 501-1154 Xylogics 450 SMD Controller is a valid alternative when transferred from another system. The Xylogics 450-based products are not available when ordering new Sun-3/200 Series products.

∇ **When installing the 501-1268 Graphics Processor 2 (GP2):** The Graphics Processor 2 will not function with the following options are installed.

501-1058 Graphics Buffer
501-1116 Sun-3 Color Board (CG3)
501-1014 Sun-2 Color Board

∇ **When installing the 501-1267 CG5 Color Board *with* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. The Graphics Processor 2 (GP2) communicates with the CG5 over a private P2 bus which MUST BE ENABLED on the CG5 board by a hardware switch setting. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.
2. The CG5 board can only be installed in slots 11(A) and 12(B) where (A) and (B) denote slot priority. (A) denotes the highest priority and (B) denotes the next highest priority.

∇ **When installing the 501-1267 CG5 Color Board *without* the 501-1268 Graphics Processor 2 (GP2) installed:**

1. If you are installing the CG5 board with either the 501-1055 Graphics Processor or the 501-1268 Graphics Processor Plus, the CG5 board MUST BE installed in slots 2-9 only.
2. The CG5 board MUST HAVE its private P2 bus disabled when the 501-1268 Graphics Processor 2 (GP2) is **not** installed. Refer to the *Configuration Procedures for the GP2 and the CG5 Boards*, P/N 813-2059.

† These boards have one of the following descriptions:

501-1100 CPU Board
501-1206 CPU Board

501-1055 Graphics Processor
501-1139 Graphics Processor Plus
501-1268 Graphics Processor 2

501-1156 CPC 1/2" Tape Ctlr. (1600 BPI)
501-1155 Xylogics 472 1/2" Tape Ctlr. (6250 BPI)

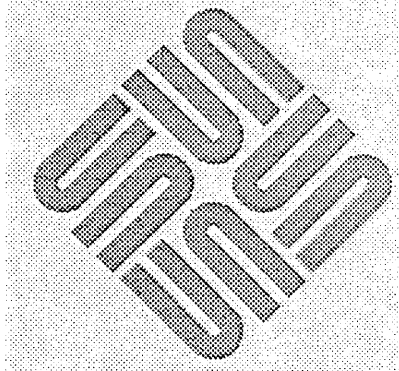
501-1138 Sun-2 SCSI Ctlr.
501-1217 Sun-3 SCSI Ctlr.

501-1154 Xylogics 450 SMD Ctlr.
501-1166 Xylogics 451 SMD Ctlr.

501-1014 Sun-2 Color
501-1116 Sun-3 (CG3) Color
501-1267 Sun CG5 Color

4

Sun-2 Product Family



4

Sun-2 Product Family

4.1. Sun-2/50

Table 4-1 *Sun-2/50*

BOARD NAME	*BACKPLANE SLOT POSITION*	
	1	2
Sun CPU†	A	
Sun Mem Exp†		A

GENERAL NOTES This table vertically lists PCB slot priority assignments for the Sun-2/50 in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred locationfor the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

These notes refer to symbols, such as "†" or "‡", on the slot assignment table for the Sun-2/50.

† These boards have one of the following descriptions:

1MB 501-1141 Sun CPU
2MB 501-1142 Sun CPU
4MB 501-1143 Sun CPU

1 MB 501-1020 Sun Memory Expansion *
2 MB 501-1046 Sun Memory Expansion *
3 MB 501-1067 Sun Memory Expansion *
4 MB 501-1047 Sun Memory Expansion *
0 MB 501-1079 Sun Memory Expansion
0 MB 501-1147 Sun Memory Exp. With Sun VME SCSI Ctlr‡
0 MB 501-1148 Sun Memory Exp. With Sky Floating Point Processor

* The 501-1045 Sun VME SCSI Controller or the 370-1029 Sky FFP may be "piggy-backed" onto 1 Mbyte, 2 Mbyte, 3 Mbyte or 4 Mbyte Memory Expansion boards. However, the combined parts retain their individual Sun Part Numbers.

‡ This assembly consists of the 0 Mbyte 501-1079 Memory Expansion Board and the 501-1045 Sun VME SCSI Controller.

4.2. Sun-2/120X

Table 4-2 *Sun-2/120X*

BOARD NAME	*BACKPLANE SLOT POSITION*								
	1	2	3	4	5	6	7	8	9
Sun CPU†	A								
1st Sun Mem Exp†		A							
2nd Sun Mem Exp†			A						
3rd Sun Mem Exp†				A					
4th Sun Mem Exp†					A				
Sun ALM-8† Controller†							A		
Sun ALM-8† USART Bd†						A			
Sun Video†					B	A			
1st 370-1049 Sun SCP**							A	B	
2nd 370-1049 Sun SCP**								A	B
501-1006 SCSI Ctlr				B	A		C	D	E
1st Ethernet†			A	B	C		D	E	F
2nd Ethernet†				A	B		C	D	E
1st 1/2" Tape Ctlr†							A	B	C
2nd 1/2" Tape Ctlr†								A	B
1st 370-1012 Xylogics 450 SMD Ctlr							A	B	C
2nd 370-1012 Xylogics 450 SMD Ctlr								A	B
370-1021 Sky Fast Floating Pt. Proc.							A	B	C
501-0461 Color Processor			F	E	D		C	B	A

GENERAL NOTES

This table vertically lists PCB slot priority assignments for the Sun-2/120 in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred location for the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

These notes refer to symbols, such as "†" or "‡", on the slot assignment table for the Sun-2/120.

** Consult your Sun sales office concerning software considerations for and availability of this unbundled product.

† These boards have one of the following Sun Part Numbers:

501-1007 CPU
501-1051 CPU

501-1013 Memory Expansion
501-1048 Memory Expansion

501-1003 Sun Video
501-1052 Sun Video

501-1004 (Sun II) Ethernet
370-0288 (3Com) Ethernet

370-1039 ALM-8 (1600 MTI set)
370-1047 Controller
370-1046 USART

370-0167 CPC 1/2" Tape Ctlr (1600 BPI)
370-0502 Xylogics 472 1/2" Tape Ctlr (6250 BPI)

4.3. Sun-2/130FS/160X

Table 4-3 *Sun-2/130FS/160X*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*											
BG3	IACK													
P X 0 3	P X 0 4		1	2	3	# 4	5	6	7	8	9	10	11	12
OUT	OUT	Sun CPU†	A											
IN	IN	Sun Mem Exp†		A										
OUT	OUT	Sun GP†			A									
IN	IN	501-1058 Sun GB				A								
IN	OUT	Sun VME Color†					A							
OUT	N/A	501-1157 Sun ALM**											**	A
OUT	OUT	501-1149 VME SCSI Ctlr						A						
OUT	OUT	1st 501-1158 Sun SCP*#			A	B	C	D	E					
OUT	OUT	2nd 501-1158 Sun SCP*#				A	B	C	D	E				
§	§	1st 501-1202 MAPKIT§*#			A	A B	C B	C D	E D	E F	G F	G		
§	§	2nd 501-1202 MAPKIT§*#					A	A B	C B	C D	E D	E F	G F	G
OUT	OUT	1st 1/2" Tape Ctlr †#			A&	B&	C&	D	E	F	G	H	I	J
OUT	OUT	2nd 1/2" Tape Ctlr †#				A&	B&	C	D	E	F	G	H	I
OUT	OUT	1st SMD Ctlr†#			A&	B&	C&	D	E	F	G	H	I	J
OUT	OUT	2nd SMD Ctlr†#				A&	B&	C	D	E	F	G	H	I
IN	IN	501-1151 VME Sky FFP					A	B	C	D	E	F	G	H
OUT	OUT	501-1153 2nd Ethr Ctlr‡#			A	B	C	D	E	F	G	H	I	J
IN	OUT	1st 501-1125 Sun IPC*										B		A
IN	OUT	2nd 501-1125 Sun IPC*									B		A	
IN	OUT	3rd 501-1125 Sun IPC*								B		A		
IN	OUT	4th 501-1125 Sun IPC*							B		A			

GENERAL NOTES:

This table vertically lists PCB slot priority assignments for the Sun-2/130/130FS/160X in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred location for the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order,

the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables. configuration.

1. The order of the cardcage slots for the 12-slot deskside pedestal is slot 1 is leftmost and slot 12 is the rightmost when viewing the pedestal from the side where boards are installed/removed from the cardcage.
2. FOR ALL SLOTS: Install backplane jumpers in locations PX00, PX01 and PX02."X" represents the slot number.
3. TO INSTALL ANY BOARD: Configure backplane jumpers PX03 and PX04 per above table. "X" represents the slot number.
4. TO REMOVE ANY BOARD: Install for the affected slot: backplane jumpers at locations PX03 & PX04, outside filler panel and air flow restricter. P1204 for Slot 12 does not physically exist on the backplane.
5. DO NOT INSTALL an air restrictor in Slot 2 when a board is not installed there.

These notes refer to symbols, such as "†" or "‡", on the slot assignment table for the Sun-2/130/130FS/160X.

\# SLOT 4 CANNOT BE POPULATED with other than a "Graphics Buffer" when a "Graphics Processor" is installed in slot 3, UNLESS the "VME to Multibus Adapter Board" used by the option is revision 501-1054-04 REV A or later. This procedure prevents signal contention on the "GP/GB bus".

& Do not place either a 1/2" Tape Controller or an SMD Controller in an unused slot to the left of the SCSI board. Doing so may adversely impact the functionality of the SCSI subsystem.

** Since the 501-1157 Sun ALM-1 consumes two slot spaces, TO INSTALL IT, YOU MUST:

1. REMOVE any board already residing in slot 11 and install jumpers in locations P1103 and P1104 on the backplane.
2. REMOVE any outside filler panel(s) covering slots 11 and 12.

‡ The "2nd Ethr Ctlr" board is the interface for the second Ethernet network. The interface for the first network resides on the CPU board.

* Consult your Sun sales office concerning software considerations for and availability of this unbundled product.

§ Each MAPKIT option occupies two slots. The "BG3" and "IACK" jumpers on the backplane are OUT for the slot that contains the MAPKIT board nearest Slot 1 (far left when facing system rear).

† These boards have one of the following descriptions:

1 MB 501-1144 Sun CPU
2 MB 501-1145 Sun CPU
4 MB 501-1146 Sun CPU

1 MB 501-1070 Sun Memory Expansion
2 MB 501-1096 Sun Memory Expansion
3 MB 501-1071 Sun Memory Expansion
4 MB 501-1097 Sun Memory Expansion

501-1055 Graphics Processor
501-1139 Graphics Processor Plus

501-1156 CPC 1/2" Tape Ctlr (1600 BPI)
501-1155 Xylogics 472 1/2" Tape Ctlr. (6250 BPI)

501-1154 Xylogics 450 SMD Ctlr
501-1166 Xylogics 451 SMD Ctlr *

501-1014 Sun-2 Color
501-1116 Sun-3 Color

*The 451-based option cannot be ordered from the factory for the Sun-2/130/160.

4.4. Sun-2/170X

Table 4-4 *Sun-2/170X*

BOARD NAME		*BACKPLANE SLOT POSITION*														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Sun CPU†		A														
1st Sun Mem Exp†			A													
2nd Sun Mem Exp†				A												
3rd Sun Mem Exp†					A											
4th Sun Mem Exp†						A										
Sun Video†							A									
1st 370-1049 Sun SCP**								A								
2nd 370-1049 Sun SCP**									A							
501-1006 SCSI Controller					B	A		C	D	E						
1st Ethernet†				A	B	C		D	E	F	G					
2nd Ethernet†					A	B		C	D	E	F	G				
1st 1/2" Tape Ctlr†								A	B	C	D	E	F			
2nd 1/2" Tape Ctlr†									A	B	C	D	E	F		
1st 370-1012 Xylogics 450 SMD								A	B	C	D	E	F	G	H	
2nd 370-1012 Xylogics 450 SMD									A	B	C	D	E	F	G	H
370-1021 Fast Sky Floating Pt. Proc.								A	B	C	D	E	F	G	H	I
501-0461 Color Processor																A
Sun ALM-14†	Ctlr†							A	B	C	D	E	F	G	H	I
	USART†								A	B	C	D	E	F	G	H

GENERAL NOTES

This table vertically lists PCB slot priority assignments for the Sun-2/170X in order of descending priority. Horizontal slot designations "A", "B", "C", etc., correspond to the preferred location for the specific board, with "A" being the most preferable location. If the only designation is "A", the board MUST be placed in that slot. Boards must be installed in descending order starting with the CPU board. If the boards are not installed in the proper order, the system may lose performance or functionality.

For further explanation, Appendix B gives a step-by-step example on how to use the slot assignment tables.

1. The order of the cardcage slots for the 12-slot deskside pedestal is slot 1 is leftmost and slot 12 is the rightmost when viewing the pedestal from the side where boards are installed/removed from the cardcage.
2. FOR ALL SLOTS: Install backplane jumpers in locations PX00, PX01 and PX02."X" represents the slot number.
3. TO INSTALL ANY BOARD: Configure backplane jumpers PX03 and PX04 per above table. "X" represents the slot number.

4. TO REMOVE ANY BOARD: Install for the affected slot: backplane jumpers at locations PX03 & PX04, outside filler panel and air flow restricter. P1204 for Slot 12 does not physically exist on the backplane.
5. DO NOT INSTALL an air restrictor in Slot 2 when a board is not installed there.

These notes refer to symbols, such as "†" or "‡", on the slot assignment table for the Sun-2/170X.

** Consult your Sun sales office concerning software considerations for and availability of this unbundled product.

† These boards have one of the following Sun Part Numbers:

501-1007 Sun CPU
501-1051 Sun CPU

501-1013 Sun Memory Expansion
501-1048 Sun Memory Expansion

501-1003 Sun Video
501-1052 Sun Video

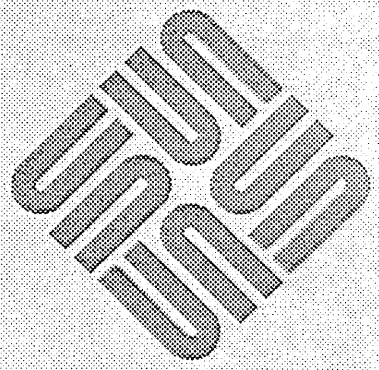
501-1004 (Sun II) Ethernet
370-0288 (3Com) Ethernet

370-1040 ALM-14 (1600 MTI set)
370-1047 Controller
370-1048 USART

370-0167 CPC 1/2" Tape Ctlr (1600 BPI)
370-0502 Xylogics 472 1/2" Tape Ctlr (6250 BPI)

A

Notes Regarding the ALM-2 and MCP Products



A

Notes Regarding the ALM-2 and MCP Products

A.1. Caution - Using the ALM-2 with the MCP or ALM-1

The ALM-2 shares VME vector interrupt assignments with the ALM-1 and the MCP. The ALM-2 also shares VME address space with the MCP. Because of these possible conflicts, and a possible physical space restriction in the Rack product, the following rules must be applied when installing an ALM-2 into a system that also contains MCPs and ALM-1s.

Rack Physical Space Restriction Rule

If three ALM-1s (with their associated mux boxes) are already installed into the rear of the Rack, there will be no room to mount the ALM-2's Device Connector Assembly (DCA). If this is the case in your installation, there are instructions in the Installation Manual for mounting the ALM-2's DCA to the floor or wall. This *is* permitted.

VME Vector Interrupt Conflict

The ALM-2 and the MCP share the *exact same* vector interrupt assignments. The ALM-1 has vector interrupt assignments that are in *conflict* with the ALM-2 (and the MCP). The following Table shows the assignments and illustrates the possible conflict.

A.2. Vector Interrupt Table

Table A-1 *ALM-2 MCP and ALM-1 Vector Interrupt Assignments*

ALM-2 MCP and ALM-1 Vector Interrupt Assignments			
Installed Board	*Device Entry Number*	*VME Vector Interrupt Assignment (Hexadecimal)*	
		ALM-1	ALM-2 and MCP
1st Board	Ø	88	8b
2nd Board	1	89	8a
3rd Board	2	8a	89
4th Board	3	8b	88

As you can see from the Table, the vector interrupt assignments of the ALM-1 and ALM-2 are in the exact opposite order, and the vector interrupt assignments of the

ALM-2 and the MCP are the same. This makes the following rules necessary.

Rule One

No more than four ALM-1, ALM-2 or MCP boards *altogether* may be installed in a single cardcage. This *does not* mean four of each kind, it means four boards *total.*

If you look at the preceding Table closely, you will see that if more than four boards were installed, two of the boards would have identical vector interrupt assignments. This will cause duplication errors of assigned vector interrupts.

Rule Two

When installing the Sun ALM-2 or MCP, the boards ***must*** be installed in proper address order. There are four VME board address positions available that can accommodate either the Sun ALM-2 or MCP board. Therefore, one address position can only accommodate one board type, and any MCP or ALM-2 must be installed in the proper board device sequence:

1st board (MCP or ALM-2)	Device Ø
2nd board (MCP or ALM-2)	Device 1
3rd board (MCP or ALM-2)	Device 2
4th board (MCP or ALM-2)	Device 3

NOTE *Refer to the specific ALM-2 or MCP Configuration Procedure for information on board device addressing.*

For example, if you had two MCP boards already installed (1st and 2nd Sun MCP boards) and you then wanted to install two Sun ALM-2 boards, you would need to configure and install the two ALM-2 boards as the 3rd and 4th ALM-2 boards respectively. This address order is exclusive of the Sun ALM-1 board addressing. This rule also applies if MCP boards are to be added to a system already containing ALM-2 boards.

NOTE *For information on ALM-1 board addressing, refer to the* ALM-1 Configuration Procedure (Sun P/N 813-2008) *for information on setting/verifying the ALM-1 board address.*

Rule Three

When installing the Sun ALM-1, it must be installed in the proper sequential board address order: with the first board installed as the 1st Sun ALM-1 and so forth. For Deskside systems that support the ALM-1, only one ALM-1 board can co-reside with the MCPand/or ALM-2 boards. The address order for the ALM-1 is exclusive of the Sun ALM-2 or MCP addressing.

It is necessary to refer to the next subsection, *VME Address Conflict,* to understand the sharing of VME address space of the ALM-2 and MCP boards and determine their correct cardcage slot assignment. The ALM-1 does not share VME address space with the ALM-2 or MCP; therefore, its slot assignment is independent of the ALM-2 or MCP.

VME Address Conflict

The ALM-2 and MCP boards occupy the identical VME address space as well as interrupt vectors, and both are known to the CPU as mcp*x* (where *x* is a number Ø through 3). So, for example, if two MCP boards are already present in the card-cage and you wish to add an ALM-2, the ALM-2 would be designated as mcp2 in the VME addressing (with the two MCP boards being designated mcpØ and mcp1 respectively).

Rule 4

The ALM-2 and MCP must not be installed using identical VME addresses (board device numbers).

The ALM-2 board number (VME Address) is hardware selected on the board. If necessary, refer to the ALM-2 Configuration Procedure (Sun P/N 813-2042-XX) for information on setting/verifying the ALM-2 board address (board *address* selection is identical for the MCP).

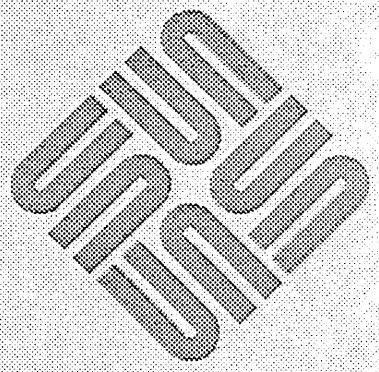
Deskside System Restrictions

Rule Five

For Deskside systems that support the ALM-1, only one ALM-1 board may co-reside in the Deskside cardcage with ALM-2 and MCP boards.

B

How to Read the Cardcage Slot Assignment and Backplane Configuration Tables



B

How to Read the Cardcage Slot Assignment and Backplane Configuration Tables

Table B-1 *Generic Cardcage Table*

BACKPLANE JUMPERS		*BOARD NAME*	*BACKPLANE SLOT POSITION*					
BG3	IACK							
P X 0 3	P X 0 4		1	# 2	# 3	# 4	# 5	# 6
OUT	OUT	CPU Board	A					
IN	IN	1st Memory Expansion Board		A				
IN	IN	FPA Board				A		
IN	IN	2nd Memory Expansion Board			A			
IN	IN	3rd Memory Expansion Board				A		
OUT	OUT	Graphics Processor					A	
IN	IN	Graphics Buffer						A
OUT	OUT	VME SCSI Ctlr		A	B	C	D	E
IN	OUT	VME Color		A	B	C	D	E
OUT	OUT	2nd Ethernet Ctlr		A	B	C	D	E

This table is for illustration purposes only. It should not be used to place boards in any Sun systems you might have.

This example table shows that these particular ten products have been qualified by Sun as possible entries into this hypothetical six-slot cardcage. The products are listed in a vertical column *in the order that they must be inserted into the cardcage.* The following example places six of the ten possible products into the allowable slots according to assigned priority.

B.1. Example Board Placement

Suppose you have the following six boards to be inserted into this six-slot cardcage:

CPU board
SCSI board
2 Memory Expansion boards
Floating Point Accelerator (FPA) board
2nd Ethernet Controller board

Compare the boards you have with the boards listed in the *Generic Cardcage Table*. The boards will be assigned in the vertical order that they occur in the table. If they are not placed in the given descending order, the system may lose performance or functionality.

First

CPU board in slot 1: The letter A in slot 1 indicates that the only position for the CPU is in slot 1.

Second

1st memory board in slot 2: The letter A in slot 2 indicates that the only position for the 1st memory board is in slot 2.

Third

FPA in slot 4: The FPA is the next item in the table, so it must be placed before the 2nd memory board. The FPA must be placed in slot 4. Note that if you had a 3rd memory board and an FPA, then you would have placed the FPA in slot 4 only to discover that the 3rd memory board should also be placed in slot 4. According to the rules of precedence, since the 3rd memory board is listed two places lower on the table than the FPA, you cannot have a 3rd memory board when you also have the FPA.

Fourth

The 2nd memory board in slot 3: The letter A in slot 3 indicates that the only position for the 2nd memory board is in slot 3.

Fifth

SCSI controller in slot 5: Whenever there is a choice, in this case slots 2 through 5, you must see which slots you have already filled. Slots 5 and 6 are left, but the letter D in slot 5 has a higher priority than letter E, so the board is placed in slot 5.

Sixth

2nd ethernet in slot 6: The 2nd ethernet is the lowest on the list of the products used in this example, so it is placed in the last slot available in the cardcage, represented by letter E in the table.

Table B-2 *Revision History*

Revision	*Date*	*Comments*
A-02	29 Jan 1986	Production release of this configuration procedure.
50-03	26 June 1986	Engineering release of first revision of this configuration procedure; Sun-3/110 added
50-04	21 July 1986	Engineering release of second revision of this configuration procedure; Sun-2/50, Sun-3/75/260/280 added; Board Part Numbers Added
A-05	10 September 1986	Production release of second revision of this configuration procedure; IPC, GP Plus added; slot assignments changed to accommodate non-Sun boards in slots 7, 8 and 9
Draft-06	15 January 1987	First draft of third revision to correct errors, add 3/140 and Mapkit configuration
A-06	27 January 1987	Production release of third revision of this configuration procedure; review comments incorporated (this version was never released)
Review Draft-07	23 February 1987	Revision for IPC 1.1 Release; added 2nd Ethernet and IPC to 3/110 chart; minor corrections
Review Draft-08	11 March 1987	This version will not be released; the tables added were incorporated in PN 813-2037
A-09	1 May 1987	Production release of revision that includes 3/160 and 3/260 slot assignment changes.
A-10	13 May 1987	Production release of revision that includes Sun IPC slot assignment changes and a color board note.
Review Draft-11	16 May 1988	Review draft of revision that rolls in the following Slot Assignment and Backplane Configuration Procedures: 813-2037 Sun-4/200; 813-2038 Sun-3/150; 813-2041 SunLink Channel Adapter; 813-2043 SunLink Multiprotocol Communication Processor; 813-2045 16-Channel Asynchronous Line Multiplexer-2; 813-2051 VME/SMD Disk Controller; 813-2053 Sun-4/110; and includes the TAAC-1 Accelerator Board.
A-12	8 June 1988	Production release of Review Draft 800-2004-11.