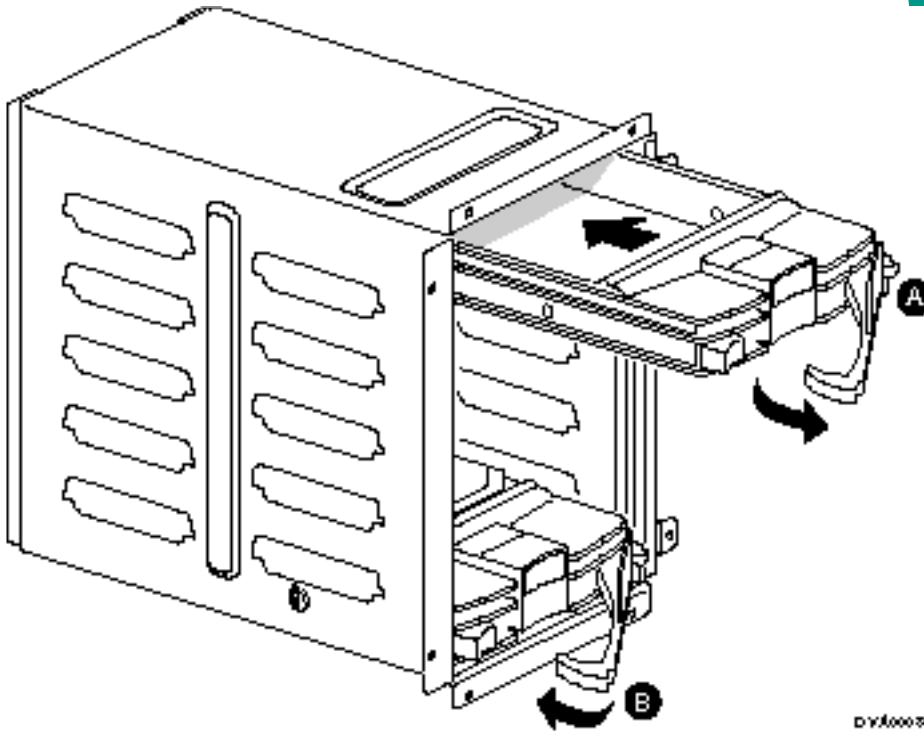
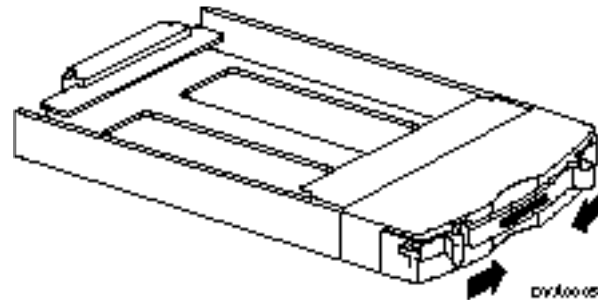
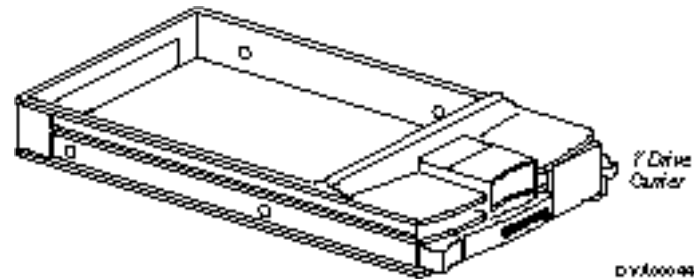
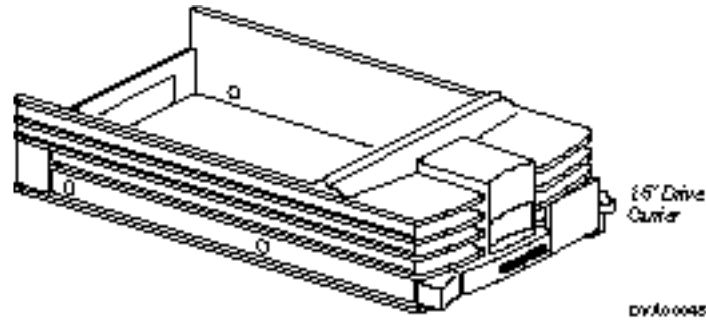




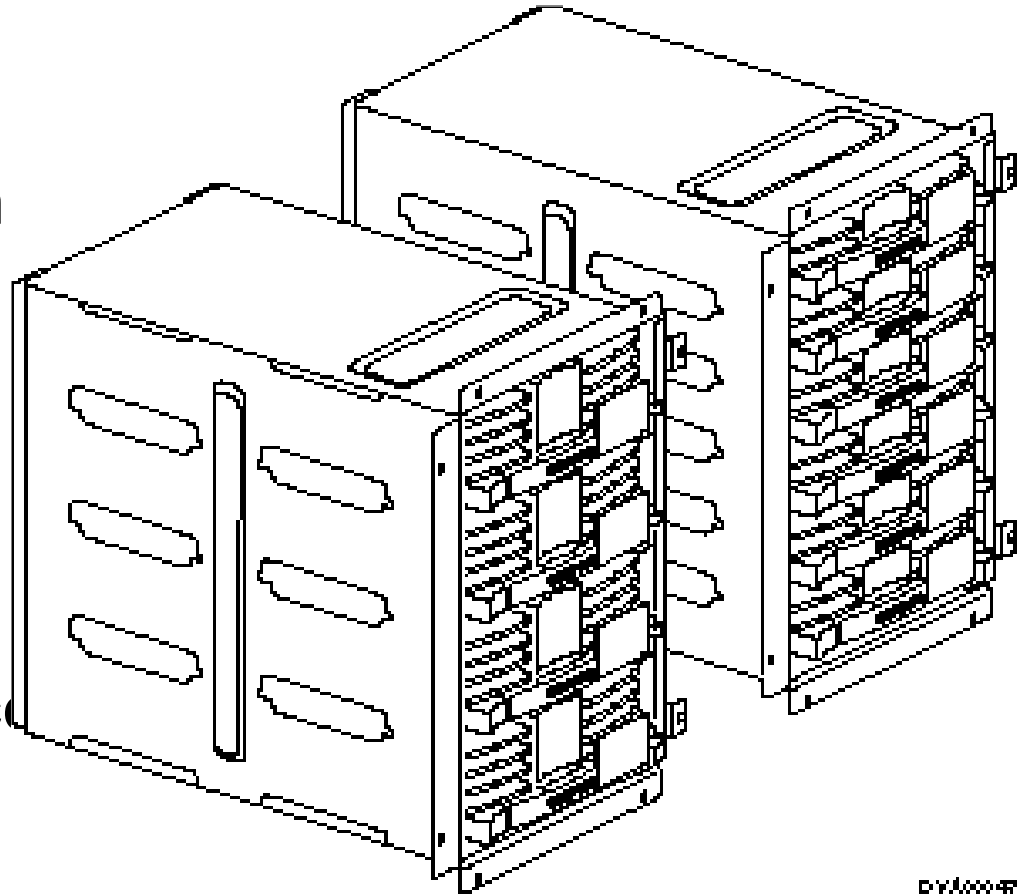
Bullwinkle LVD SCSI Storage Subsystem



- Features
- SAF-TE
- SAF-TE Processor
- System Block Diagram
- Backplane Layout
- Cabling Rules
- SCSI ID rules
- Configuration guidelines
- Drive Indicators

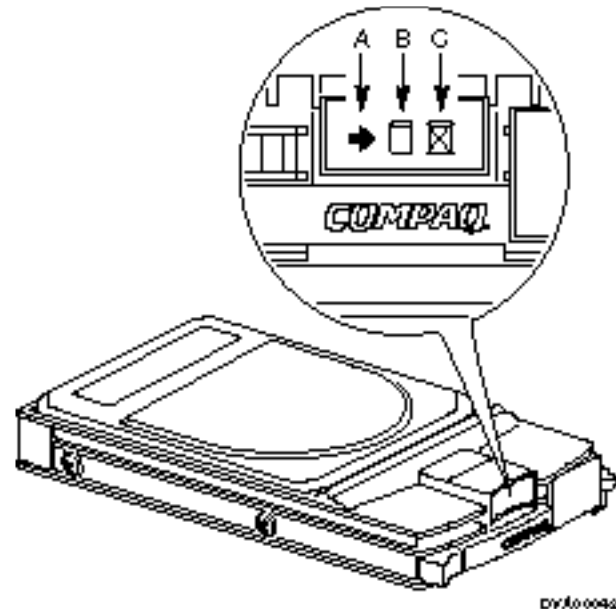


- Supports New Houston designed Carriers
- 1.6" or 1.0" drives
- 4 x 1.6" carrier version
- 3+3 x 1.0" carrier version
- Modular Configuration: backplane chaining
- LVD and SE SCSI
- Wide Ultra-2
- Microstrip and Stripline technology for impedance matching to cables



DY100047

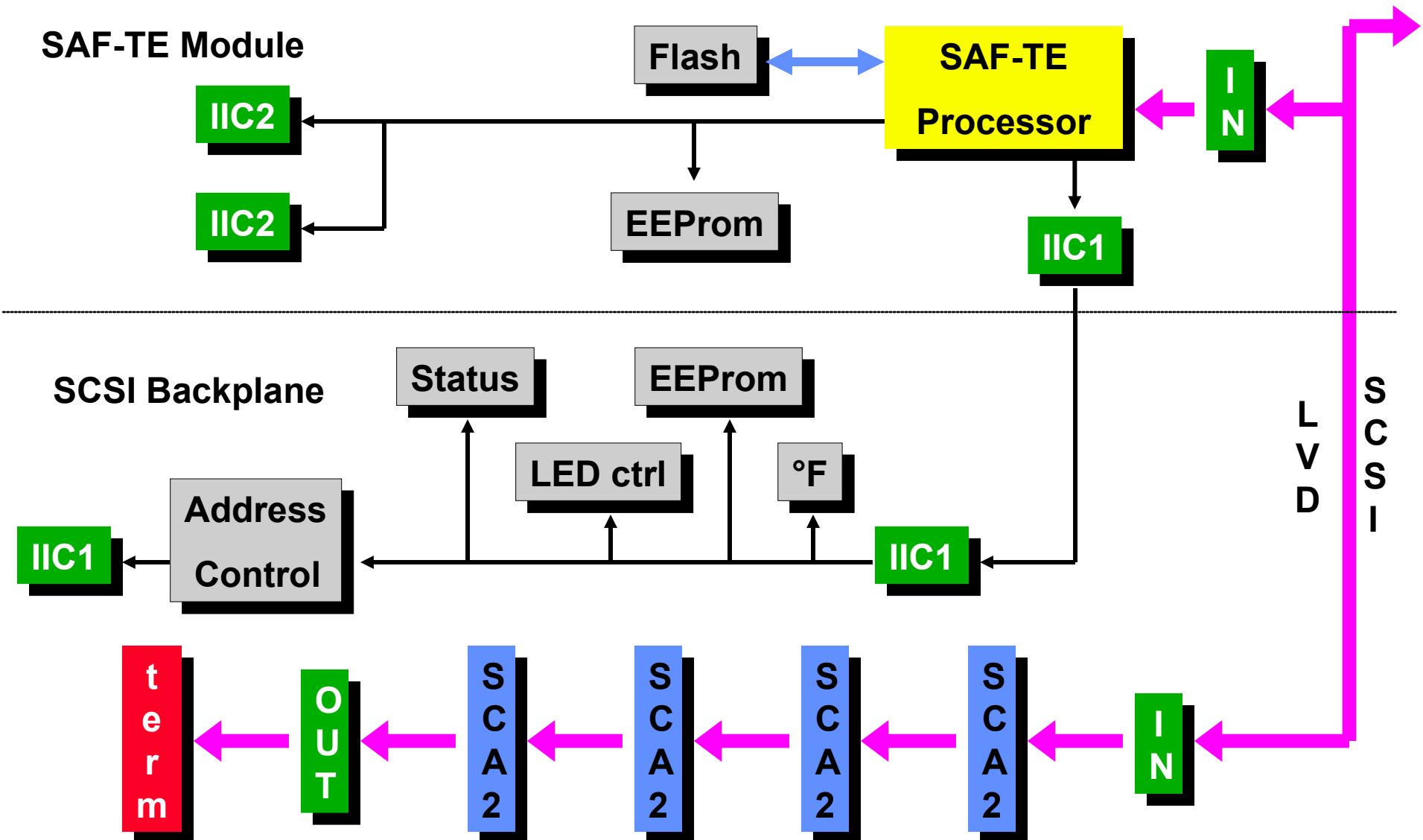
- Automatic configuration
- Automatic On-Board Multimode Termination
- SAF-TE Protocol Processor (53C040)
- Hot Plug
- Drive Detection
- 3 status LEDs per bay
- Temperature Sensing
- Potential Future upgrades to SES and / or Nile



- **SCSI Accessed Fault Tolerant Enclosure**
- **Utilizes standard SCSI bus Protocol**
- **Supported by the Industry**
- **Allows monitoring of Storage Enclosure**
- **Status indicator control (LEDs)**
- **SCSI IDs**
- **Temperature Reporting**
- **Assembly Data**
- **Drive presence**
- **Power monitoring / Control**
- **Fan monitoring / control**
- **Door lock sensing**
- **Usage Statistics (power cycles, insertions)**

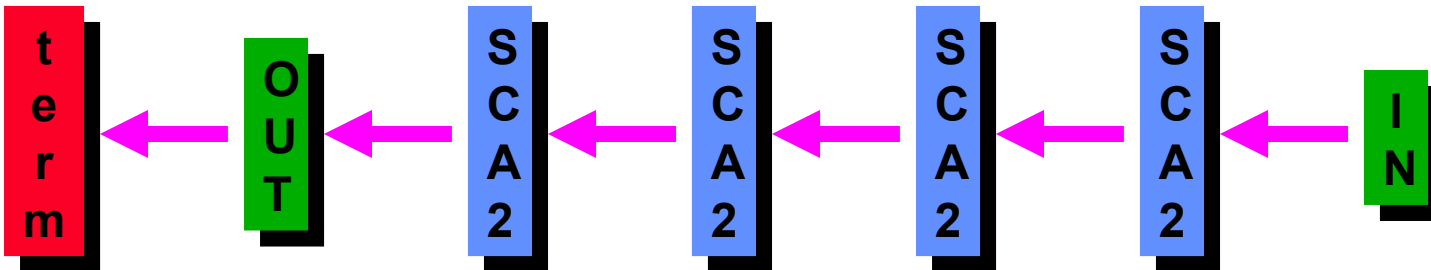
- **Symbios (LSI) 53C040**
- **40 MHz 8032 Core**
- **C80 SCSI Core**
- **8 bit asynchronous transfers only**
- **16K Internal RAM**
- **Program downloaded from EEPROM at Power-up**
- **SCSI ID fixed in Firmware at ID6**
- **Firmware Supports ID0-7,14,15**
- **Hardware capable of ID0-15**

System Block Diagram

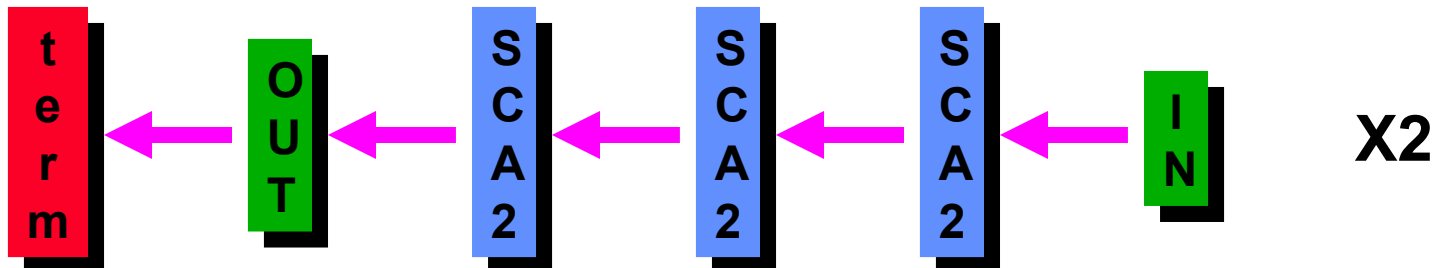


Backplane Layout

4 Slot Backplane

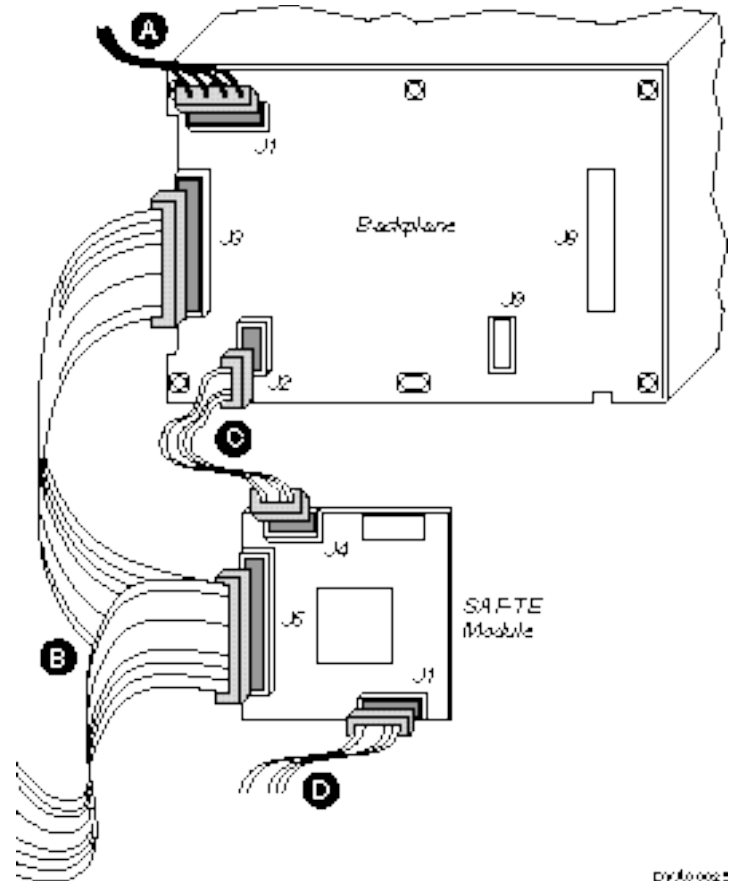


6 Slot Backplane



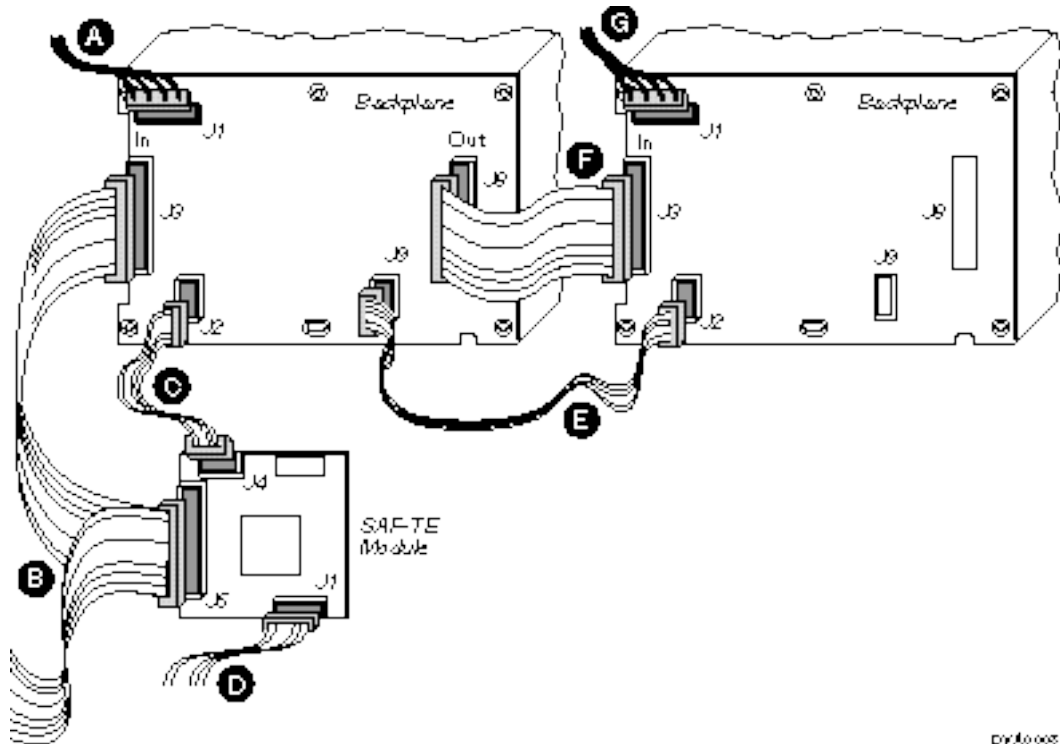
4 slot backplane cabling

- A - Power Harness
- B - 68 pin SCSI cable to Controller
- C - 10 pin storage management bus cable
- D - 12 pin system management bus cable (not used)



Cabling a second backplane

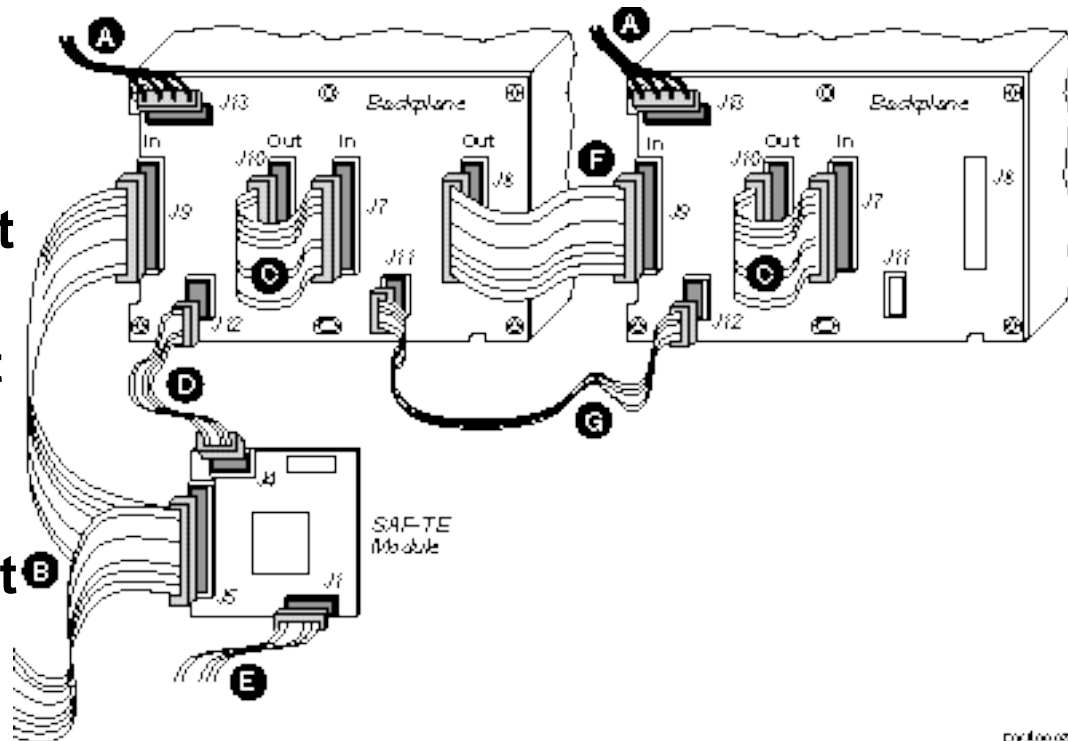
- E - 10 pin storage management bus jumper cable
- F - 68 pin SCSI jumper cable
- G - Power harness to second backplane



00110-0001

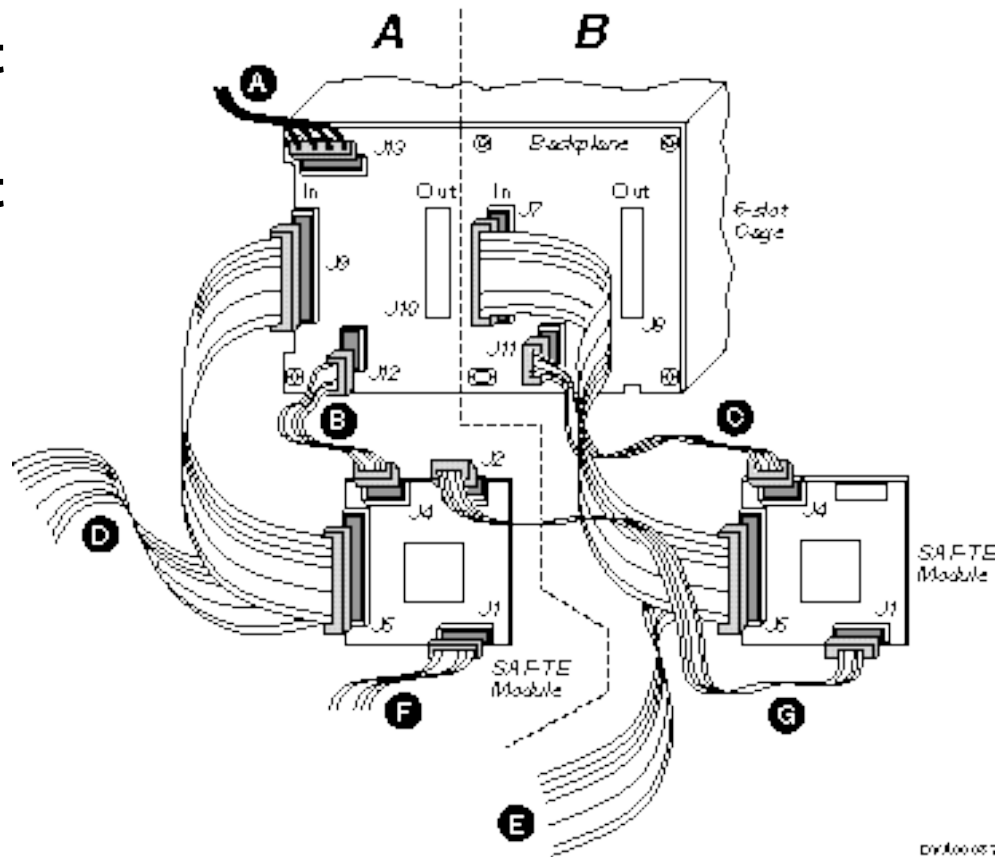
6 slot backplane cabling

- A - Power Harness
- B - 68 pin SCSI cable to Controller
- C - 68 pin SCSI cable to connect split backplane
- D - 10 pin storage management bus cable
- E - 12 pin system management bus cable (not used)
- F - 68 pin SCSI jumper cable
- G - 10 pin storage management bus jumper cable



6 slot split configuration

- A - Power Harness
- B - 10 pin storage management bus cable (Channel A)
- C - 10 pin storage management bus cable (Channel B)
- D - 68 pin SCSI cable to Controller (Channel A)
- E - 68 pin SCSI cable to Controller (Channel A)
- F - 12 pin system management bus cable (not used)
- G - 12 pin system management bus jumper (not used)



	BACKPLANE #1	BACKPLANE #2	BACKPLANE #3
Standard 4 slot configuration	ID 0,1,2,3	ID 8,9,10,11	ID 12,13,14,15
4 slot with ID jumper installed	ID 12,13,14,15	ID 4,5,6,7	ID 0,1,2,3
6 slot configuration	A: ID 0,1,2 B: ID 3,4,5	A: ID 8,9,10 B: ID 11,12,13	unsupported

6 slot backplane ID's not affected by split / unsplit configuration

IDs count from Right to Left / Top to Bottom

Backplane #2,#3 refers to 2nd and 3rd backplane in chain only

ALL SYSTEMS

- **SCSI Termination Enabled Automatically. Connecting cable to OUT connector disables termination.**
- **SCSI IDs controlled by backplane position in chain**
- **Single SAF-TE Module for each SCSI Channel**
- **Install Carrier blanks in all unoccupied drive bays**

UNIX ONLY

- **Chaining 6 slot backplane not supported**
- **When Chaining 4 slot backplanes, install ID jumper in second backplane and no drives allowed in last 2 slots (ID6 and ID7)**

Drive Indicator LEDs

LED A	LED B	LED C	Priority	INDICATION
OFF	X	X	-	No Drive Activity
ON	X	X	-	Drive Being Accessed
X	OFF	OFF	0	Default
X	ON	ON	1	Ready for Insertion / Removal
X	SLOW	OFF	2	Prepared for Operation
X	OFF	ON	3	Device Faulty
X	FAST	OFF	4	Device Rebuilding

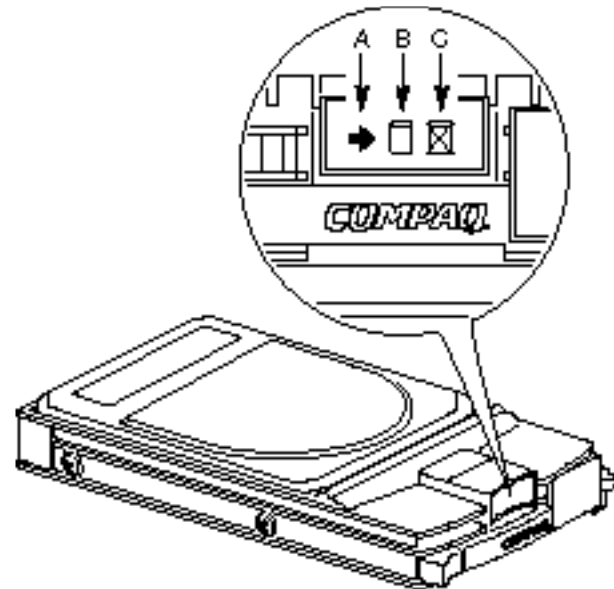
LED A = Activity (Green)

LED B = Status (Green)

LED C = Fault (Amber)

Note: Not all indications supported

**If multiple conditions exist, highest
priority condition displayed**



Dr/fo0042

Drive Indicator LEDs

LED A	LED B	LED C	Priority	INDICATION
X	ON	FAST	5	In Failed Array
X	OFF	SLOW	6	In Critical Array
X	OFF	ON	7	Parity Check
X	OFF	FAST	8	Predicted Fault
X	FAST	ON	9	Unconfigured
X	FAST	FAST	10	Hot Spare
X	ON	OFF	11	Rebuild Stopped
X	FAST	SLOW	12	Identify

LED A = Activity (Green)

LED B = Status (Green)

LED C = Fault (Amber)

Note: Not all indications supported

**If multiple conditions exist, highest
priority condition displayed**

