

DEC Network Integration Server 600

Hardware Information for Digital Services

Order Number: EK-A0571-MG.001

This manual is intended for Digital Services engineers. It contains hardware information for the DEC Network Integration Server 600, including a recommended spares list and Field Replaceable Units list.

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How to Use This Manual

This manual provides Digital Services engineers with information about DEC Network Integration Server 600 (DECNIS 600) hardware components. The information is useful as a reference, especially when problem solving or testing the DECNIS 600.

This manual should be used as a supplement to the *DEC Network Integration Server 600 Installation and Service Manual* and Network Interface Card documents.

Structure

This manual has four chapters and two appendixes:

- Chapter 1 contains information about the power module.
- Chapter 2 describes DECNIS 600 components that provide thermal protection.
- Chapter 3 contains information about backplane support and operation of the DECNIS 600 bus.
- Chapter 4 describes system testing and includes information about the processor card, memory card, and Network Interface Cards.
- Appendix A lists recommended spares for the DECNIS 600.
- Appendix B is a Field Replaceable Unit (FRU) list for the DECNIS 600.

Product Documentation

Hardware Documentation

For information about the DECNIS 600 hardware, refer to:

- *DEC Network Integration Server 600 Installation and Service Manual*
This manual shows how to install and test the DECNIS 600. It contains problem solving procedures and describes how to remove and replace hardware components. It is intended for customers who are trained as service personnel.
- *DEC Network Integration Server 600 Configuration Card*
This card is provided for completion by the customer. It includes system identification information, contacts, and details of the load host(s) for the DECNIS 600.
- Network Interface Card *Cabling Instructions and Specifications* card
A *Cabling Instructions and Specifications* card is provided with each Network Interface Card. It shows how to install the cables associated with a Network Interface Card and includes product information that is specific to the Network Interface Card.
- Network Interface Card *Problem Solving* card
A problem solving card is provided with each Network Interface Card. It contains problem solving procedures specific to the Network Interface Card.
- Network Interface Card *Configuration Card*
A configuration card is provided with each Network Interface Card for completion by the customer. The card includes information about the Network Interface Card lines and ports.

Software Documentation

For information about the DECNIS 600 software, refer to:

- *DEC Network Integration Server Introduction*
- *DEC Network Integration Server Installation* card
- *DEC Network Integration Server Configuration*
- *DEC Network Integration Server Management*
- *DEC Network Integration Server Event Messages* (supplied on line)
- *DEC Network Integration Server Problem Solving* (supplied on line unless a hardcopy version is ordered)

Digital Services Documentation

Details of the DECNIS 600 and an up-to-date list of FRUs and recommended spares can be found in:

- *Communication Options Minireference* manual
- *Technical Information Management Architecture (TIMA)* online database

Terminology

DECNIS 600	DEC Network Integration Server 600.
LED	Light Emitting Diode. This abbreviation is used to describe the indicators on the DECNIS 600.
NIC	Network Interface Card.

Power Module Information

This chapter includes information about outputs from the power module and describes power module states. It also identifies the power test points and remote sensing on the backplane assembly, and specifies the power module's voltage range.

1.1 Power Module Outputs

There are four outputs from the power module. In powering sequence, these are:

1. Fan output (FAN 1 and FAN 2)
2. ± 12 V
3. +5.1 V
4. +2.1 V

On power down, all outputs are disabled simultaneously.

1.2 Power Module States

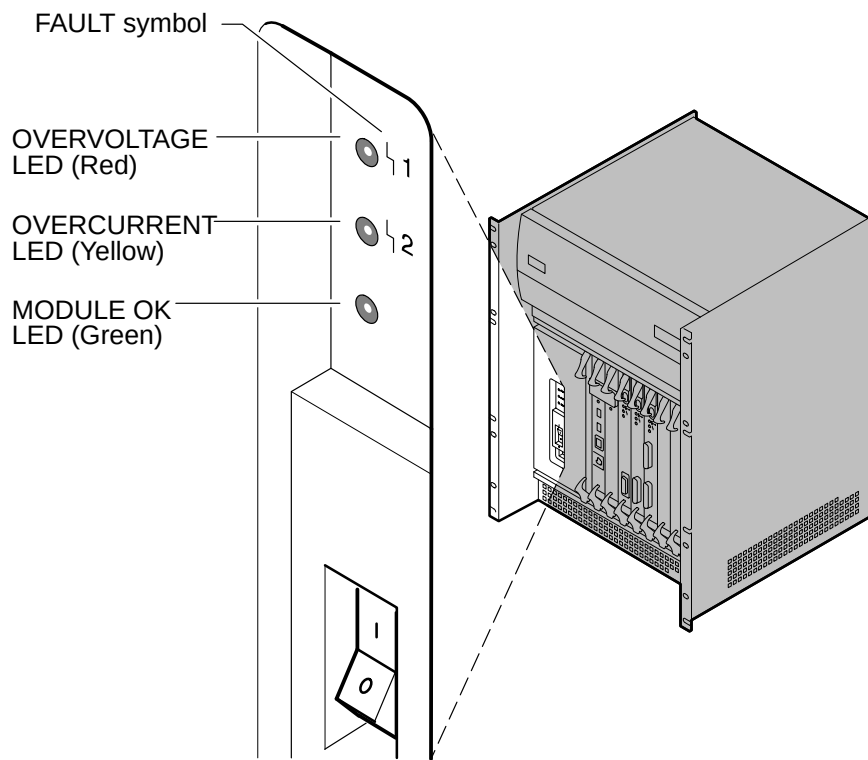
The three LEDs on the power module are shown in Figure 1–1. The LEDs indicate the following:

- **OVERVOLTAGE**

If LED 1 is lit, there is an overvoltage condition on one or more of the outputs. Overvoltage protection is provided for the +5.1 V, ± 12 V, and the +2.1 V outputs:

- If the +5.1 V output reaches an overvoltage condition, the power module shuts down.
- If the ± 12 V or the +2.1 V reaches an overvoltage condition, that output shuts down but all other outputs maintain nominal voltage.

Figure 1-1 Power Module LEDs



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If the fan output (FAN 1 and FAN 2) reaches an overvoltage condition, LED 1 is lit but the fans do not shut down.

When any output fails due to an overvoltage condition, the DECNIS 600 must be powered off and then powered on again to resume operation.

- **OVERCURRENT**

If LED 2 is lit, there is an overcurrent condition on one or more of the outputs. Overcurrent protection is provided for all outputs:

- If there is an overcurrent condition on the +5.1 V output for more than two seconds, the power module shuts down. To resume operation, the overcurrent condition must be removed and the system powered off and powered on again.

- If there is an overcurrent condition on the ± 12 V, +2.1 V, or FAN 1/FAN 2 output, only that output shuts down. When the overcurrent condition is removed, there is no need to power off and power on the system again; the output recovers to normal operation.
- **MODULE OK**
This LED indicates that the power module is operating successfully. All power outputs are within the limits specified in Table 1–1.

Table 1–1 Output Specifications

Parameter	Output 1	Output 2	Output 3	FAN 1/FAN 2
Nominal voltage (V)	+5.1	± 12.0	+2.1	See Table 2–2.
Tolerance (V)				
Minimum	+4.98	± 11.4	+2.06	–
Maximum	+5.25	± 12.6	+2.14	
Output current (A)				
Minimum	0.00	± 0.00	0.00	0.50
Maximum	90.0	+8.3/–4.9	10.0	4.00 ¹
Current limit (A)				
Minimum	94.5	+8.7/–5.1	10.5	8.0
Maximum	112.5	+10.4/–6.1	12.5	9.7
Maximum short circuit current (Arms)	90	+8.3/–4.9	10.0	9.7

¹FAN 1/FAN 2 provides 8.00 A maximum startup current for 250 ms.

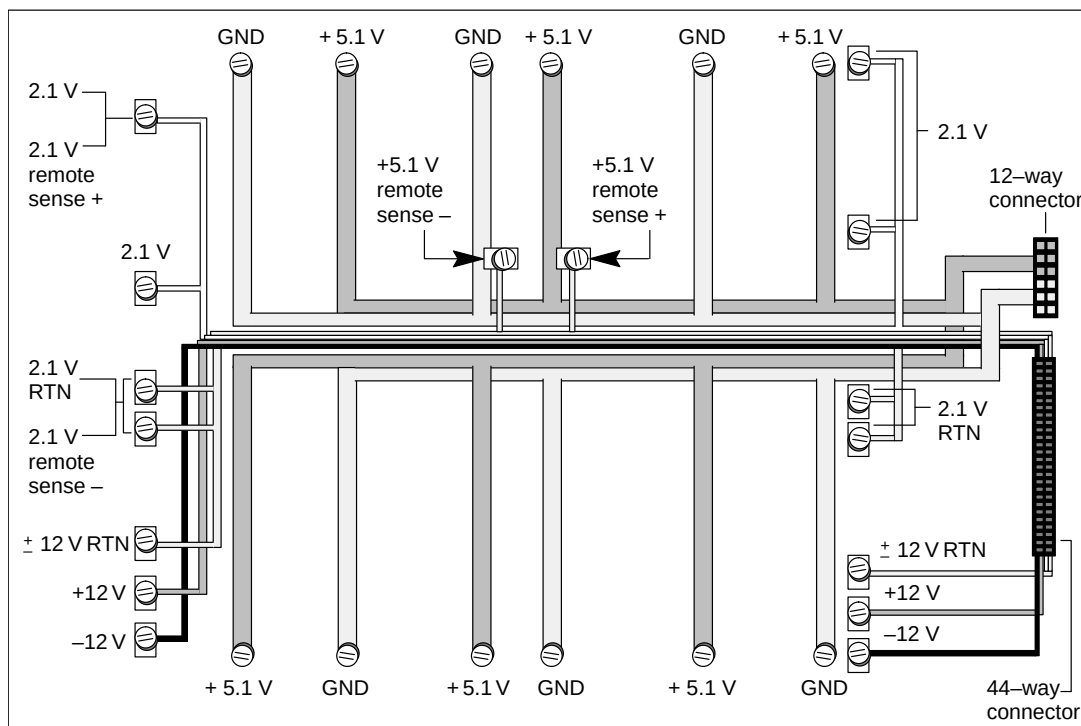
1.3 Power Module Test Points

Figure 1–2 shows the backplane assembly at the rear of the DECNIS 600 and the power module output test points on the assembly.

Note

Take care when taking voltage measurements on the test points; the power module has a 90 A capacity for the +5.1 V output.

Figure 1-2 Power Output Test Points



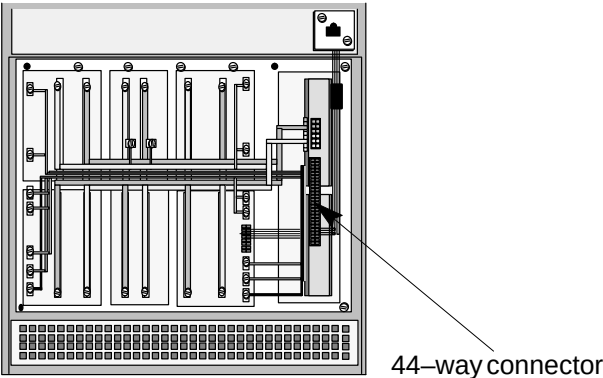
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1.4 Remote Sense

Remote sense is provided for the +5.1 V and +2.1 V outputs. The remote sense is used to detect any voltage drop over the backplane connections. If a drop is detected, the power module can compensate to keep the outputs on the backplane within specification.

Figure 1-2 shows the location of the +5.1 V and +2.1 V remote sense connections on the backplane assembly. Figure 1-3 shows the location of these connections on the 44-way edge connector.

Figure 1-3 44-Way Edge Connector



5.1 V remote sense +	1	A	5.1 V remote sense –
2.1 V remote sense +	2	B	2.1 V remote sense –
2.1 V	3	C	2.1 V
2.1 V	4	D	2.1 V
2.1 V	5	E	2.1 V
2.1 V	6	F	2.1 V
2.1 V RTN	7	H	2.1 V RTN
2.1 V RTN	8	J	2.1 V RTN
2.1 V RTN	9	K	2.1 V RTN
2.1 V RTN	10	L	2.1 V RTN
FAN 1+	11	M	FAN 1–
FAN 2+	12	N	FAN 2–
+12 V	13	P	+ –12 V RTN
+12 V	14	R	+ –12 V RTN
+12 V	15	S	+ –12 V RTN
+12 V	16	T	+ –12 V RTN
–12 V	17	U	+ –12 V RTN
–12 V	18	V	+ –12 V RTN
–12 V	19	W	No connection (+ –12 V RTN)
PWRDN	20	X	No connection (BURN-IN L)
POK	21	Y	TEMPOK
DCOK	22	Z	SIGNAL RTN

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Note that on the 44-way connector, there are no connections in sockets W and X. These are used by manufacturing for ± 12 V RTN and BURN-IN L (usually set high to +5 V). They should not be used for any other connections.

1.5 Voltage Setting

There is no voltage setting switch on the DECNIS 600 unit. The power module can operate over an actual voltage range of 88 V to 264 V.

For more information about DECNIS 600 power specifications, refer to the *DEC Network Integration Server 600 Installation and Service Manual*.

Thermal Protection

This section describes temperature detection on the DECNIS 600 and operation specifications for the fans.

2.1 Ambient Air Temperature Sensor

An ambient air temperature sensor is located inside the power module. This sensor monitors the temperature of ambient air entering the power module.

If there are any problems with this sensor, the power module must be replaced. The ambient air temperature sensor is not available as an FRU.

2.1.1 How the Sensor Protects the System

The ambient air temperature sensor protects the DECNIS 600 by activating a warning (TEMPOK) or shutdown (PWRDN) signal when a fault condition is detected. Table 2–1 describes how the system is protected when the TEMPOK or PWRDN signal is activated and specifies the temperatures for warning and shutdown.

Table 2–1 Thermal Protection Process

Temperature	Signal Activated	Process
48°C (±3°C) (113°F to 124°F)	TEMPOK	The processor card receives the TEMPOK signal and logs an event message to the host management system. It continues to log the event until the temperature falls within the specified range.
53°C (±3°C) (122°F to 133°F)	PWRDN	The power module shuts down (no LEDs lit) and the processor card is notified so that it can record the reason for shutdown. On shutdown, there is no indication of an overtemperature problem on any of the DECNIS 600 displays.

Note that PWRDN cannot be activated by the DECNIS 600 software (for example, NCL commands). The DECNIS 600 software cannot shut down the unit.

2.2 Ambient Air Temperature Switch

The ambient air temperature switch is located on the lower part of the processor card. In this position, it is able to monitor the temperature of air flowing in through the inlet air vents underneath the unit.

If the air temperature exceeds 45°C (113°F), the processor card sends an event message to the host management system and continues to log the event until the temperature falls within the specified operating range.

The ambient air temperature switch is used by the processor card only. It cannot cause the power module to shut down and its function is independent of the ambient air temperature sensor on the DECNIS 600.

2.3 Fans

Fan speed also provides thermal protection on the DECNIS 600. When the ambient air temperature sensor inside the power module detects a change in temperature, fan drive voltage is increased or decreased to maintain operating temperature. This is shown in Table 2–2.

Table 2–2 Ambient Air Temperature and Fan Drive Voltages

Output	Minimum Voltage at Minimum Temperature	Maximum Voltage at Maximum Temperature
FAN 1	11.4 V (±3%) at 24°C (±3°C) (70°F to 81°F)	24.0 V (±3%) [†] at 40°C (±3°C) (99°F to 109°F)
FAN 2 [‡]	10.6 V (±5%) at 24°C (±3°C) (70°F to 81°F)	23.2 V (±5%) at 40°C (±3°C) (99°F to 109°F)

[†]The power module supplies 24 V (± 3%) maximum at 4 A output (2 A for each fan).

[‡]FAN 2 is connected to FAN 1 through a diode. FAN 1 is driven directly.

At temperatures below 24°C (75°F), the fans run at minimum speed and at 40°C (104°F) the fans run at maximum speed. Between these temperatures, fan speed is varied proportionately to the ambient air temperature.

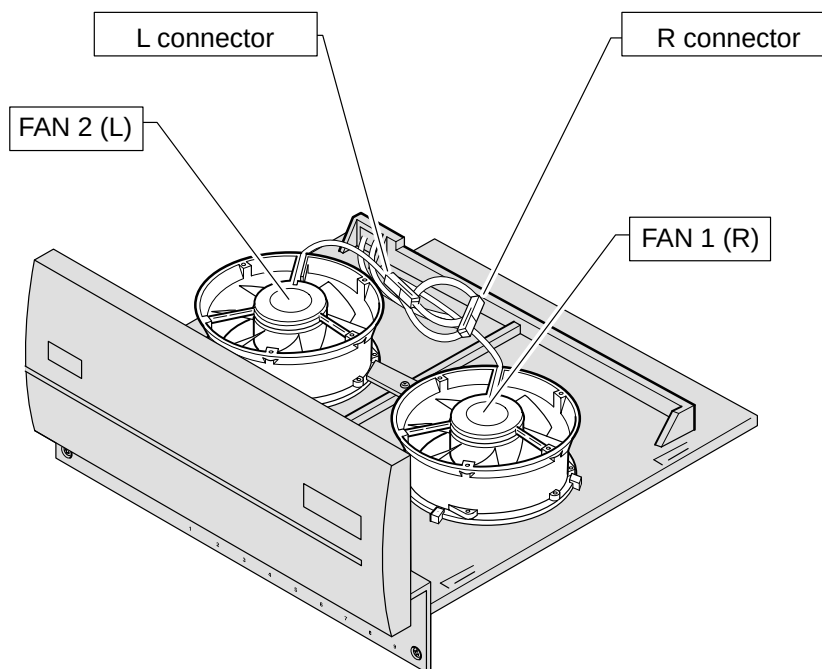
Note that FAN 2 runs slower than FAN 1 so that audible 'beating' of the fans is reduced. If you change the fans, make sure that FAN 2 (marked "L") is:

- Installed on the lefthand side of the fan tray (when viewed from the front)
- Attached to the fan tray connector marked "L"

If you do not connect the fans correctly, it could cause unpredictable thermal protection and may even cause system shutdown.

Figure 2–1 shows the location of FAN 1, FAN 2, and the fan tray connectors.

Figure 2–1 FAN 1 and FAN 2 Connections



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Backplane Support

This chapter describes the DECNIS 600 bus, central arbitration, and slot allocation on the DECNIS 600.

3.1 Bus Topology

The design of the DECNIS 600 bus is based upon the Futurebus+ standard (IEEE 896). Futurebus+ is the generic term for a suite of standards that define design options for backplane interconnection in modular systems.

To guarantee that all Futurebus+ compliant modules can operate with each other, the Futurebus+ standard defines profiles that set out specific requirements for module development. The profiles specify physical characteristics, such as board size and connectors, and define protocols for data transfer and arbitration. The DECNIS 600 bus is based on the Futurebus+ standard Profile B that sets out specific requirements for I/O bus environments.

3.1.1 Futurebus+ Profile B Compliance

The DECNIS 600 complies with Futurebus+ standard Profile B in the following ways:

- Basic physical design (for example, card size, front panel I/O only, and indicators)
- Bus Transceiver Logic (BTL) circuitry for backplane drivers (incident wave switching and reduced crosstalk problems through smaller switching voltages)
- Common connections on the main signal pin connector.
- 32-bit addressing and data on the modules; the DECNIS 600 backplane supports a 64-bit bus
- Compelled read and write transactions
- Central arbitration (see Section 3.3)

3.1.2 Futurebus+ Profile B Noncompliance

The following design features on the DECNIS 600 **do not** comply with the specifications set out by Futurebus+ Profile B:

- Design of the DECNIS 600 system bus and pin connections used to provide thermal control and power supply logic.
- V+/V – power rail values (± 12 V, not floating 48 V).
- Dedicated power fail pin on the central arbitration connector.
- 3.3 V power pins are reserved but unused.
- Only limited logical layer compliance with Profile B (no split response transactions).
- No compliance with the Futurebus+ register set architecture.

3.2 System Bus Connectors

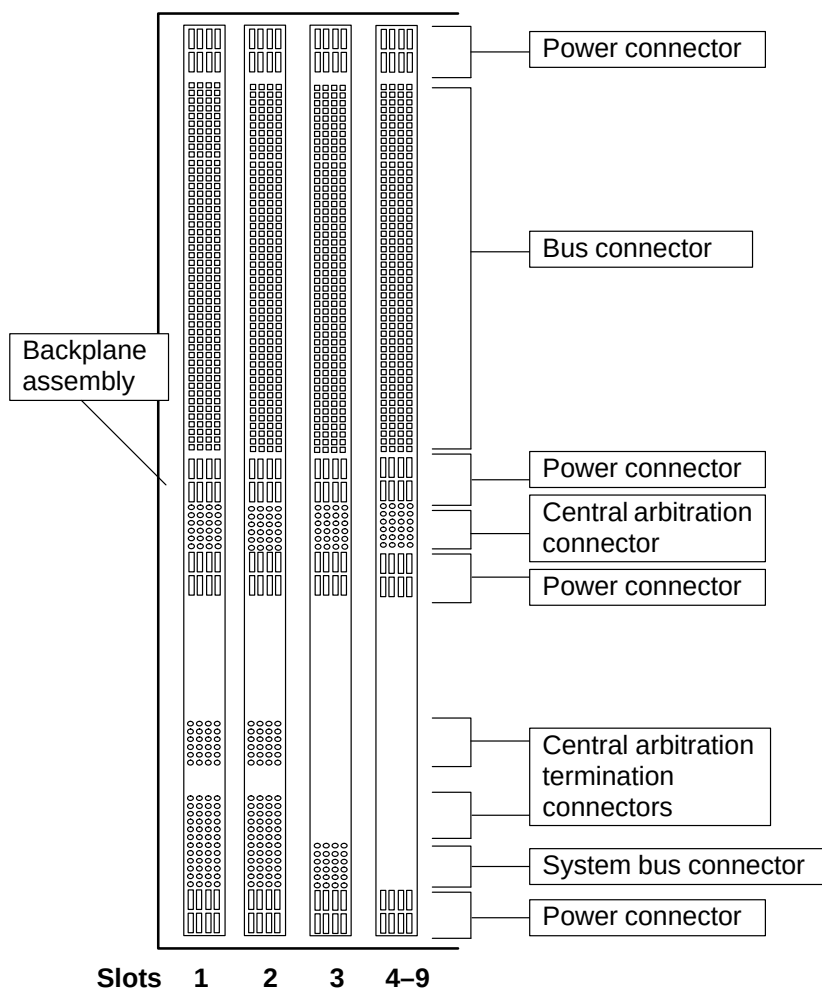
Dedicated signal lines are provided from the power module to the processor card through a 16-way connector on the backplane. These signals are carried over the system bus:

- PWRDN
- POK (AC)
- DCOK
- TEMPOK

Connectors for the system bus are only provided in slots 1, 2, and 3 (see Figure 3–1). Therefore, the processor card can only be installed in one of these slots.

Note that slot 3 should only be used as a temporary measure, either for problem solving or as a workaround until a new backplane assembly or DECNIS 600 unit is available. The protective cover on the power module extends across slot 1 and slot 2 to prevent the processor card and the memory card from being removed while the system is powered up. The protective cover does not extend across slot 3.

Figure 3-1 Backplane Connectors



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3.3 Central Arbitration

A central arbitration controller is included on the memory card. The controller is responsible for ensuring that for any number of requests from the cards (each card has two request lines) there is only one grant line active on the bus.

The DECNIS 600 has central arbitration termination connectors in slots 1 and 2 only (see Figure 3–1). For this reason, the memory card must be installed in slot 1 or slot 2 and should not be installed in any of the other slots.

The system bus signals also include an arbitration controller inhibit signal. This signal ensures that if more than one memory card is installed in the system, only one arbitration controller is active on the bus.

3.4 Extension Cards

There are no extension cards available for the DECNIS 600 bus. The service strategy for the DECNIS 600 is by FRU replacement.

System Testing and Card Information

This chapter describes the module self-test and system self-test and the interaction between cards. It includes information about installing cards and testing cards, and explains the conventions used to identify cards.

4.1 System Self-Test

The system self-test is activated on power up. There are two parts to it:

1. The processor card, memory card, and each enabled Network Interface Card runs an on-board module self-test (see Sections 4.1.1 to 4.1.3).
2. A system exerciser is run on the working system (see Section 4.1.4). Any Network Interface Card that fails module self-test is not included in this part of the testing.

4.1.1 Processor Card Module Self-Test

The module self-test on the processor card tests the following:

- Processor
- Memory (ROM, RAM, BBRAM, Flash RAM)
- Logic
- Bus interface

For more information about the LED states shown on the processor card during module self-test, refer to the *DEC Network Integration Server 600 Installation and Service Manual*.

4.1.2 Memory Card Module Self-Test

The memory card relies on the processor card to run its module self-test because it does not have its own on-board processor.

The memory card waits (no LEDs lit) until the processor card has completed and passed module self-test. Then the processor card accesses the memory card across the bus and checks the following:

- Interaction with the ARE (Address Recognition Engine) chip on the memory card. The ARE chip performs trial addressing lookups and returns data back to the processor card. The addressing data must correspond to that held in memory on the processor card. If the addressing data is incorrect, the memory card fails its module self-test.
- System pool memory available on the memory card.

4.1.3 Network Interface Card Module Self-Test

The Network Interface Card module self-test checks the following:

- Processor
- Memory (ROM, RAM, BBRAM)
- Bus interface
- Access to the memory card
- Network Interface Card I/O interface

The module self-test also runs a loopback test on the card. On most Network Interface Cards, this is limited to internal loopback only. However, if a loopback connector is fitted to a DEC WANcontroller 622 Network Interface Card before module self-test, external loopback is run.

4.1.4 System Exerciser

When the processor card, memory card, and all enabled Network Interface Cards have completed module self-test, the system exerciser is activated. The system exerciser checks the DECNIS 600 by using as much bandwidth of the bus as possible and loading the entire system.

The system exerciser is run in the following stages:

1. The processor card requests each Network Interface Card to boot its primitive driver. The driver is resident in the Network Interface Card's ROMs.
2. The driver transmits and receives frames to and from the processor card (no Network Interface Card to Network Interface Card transactions).

At the same time, the processor card interacts with the ARE chip on the memory card.

When the system exerciser has finished, the system self-test is complete and the READY LEDs on the processor card, memory card, and Network Interface Cards should be lit. Refer to the *DEC Network Integration Server 600 Installation and Service Manual* for more information.

4.2 System Self-Test Failure

If a hardware fault is detected during system self-test, the system self-test (upper) display on the processor card shows the value 2. The system operation (lower) display shows the number of a slot. This indicates that the system has attempted to isolate the problem and identifies it with a particular slot or card.

However, it is important to note that other hardware components could cause the problem and that a wider approach to fault finding should be taken. For example, there could be a problem with the backplane assembly and both the slot and the card may be working correctly.

4.3 Network Interface Card Loopback Testing

The *Problem Solving* card for each Network Interface Card shows how to run a separate **module loopback test** by attaching a loopback connector to check the card and its port. For more information, refer to the *Problem Solving* card.

4.3.1 Distribution Panel Loopback

The module loopback test cannot be used to test the ports on a distribution panel. To test a distribution panel port, the DECNIS 600 software must be installed and loaded so that NCL can be used to perform the loopback. Refer to the Network Interface Card's *Problem Solving* card.

4.3.2 Ethernet LAN Card Loopback

Internal loopback testing on an Ethernet LAN card is automatically performed during module self-test. External loopback testing is also activated on Ethernet LAN cards when the system software has been loaded.

During external loopback, the card must either be connected to the network or have a loopback connector attached to its port to pass the test. If the loopback test fails, the ATTENTION state is shown on the card (READY and FAULT LEDs lit) until the loopback test passes. The card continues to perform external loopback until it passes.

4.4 Processor Card and Memory Card Testing

For problem solving or testing purposes, all Network Interface Cards can be removed and the DECNIS 600 can be powered up with only the processor card and memory card installed. On power up, system self-test is automatically run, even though there are no Network Interface Cards available.

However, note that:

- The processor card can only be installed in slots 1, 2, or 3 (see Section 3.2).
- The memory card can only be installed in slots 1 and 2 (see Section 3.3).
- Any slot that does not contain a card should be covered with a slot cover.

4.5 Installation Torques

When installing a processor card, memory card, or a Network Interface Card, it is important not to overtighten the screws that hold the card in its slot. The thread insert for each screw is molded separately and attached to the enclosure frame. If you overtighten the screws, you could damage the insert.

4.6 Card Reference Numbers

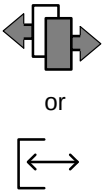
The Bxxx number on a card is a spares part number used by Digital Services.

The DNSxx number on a card is a sales option number.

4.7 Card and Power Module Symbols

Figure 4–1 shows the symbols used on the cards and power module and describes what they mean.

Figure 4-1 Symbols

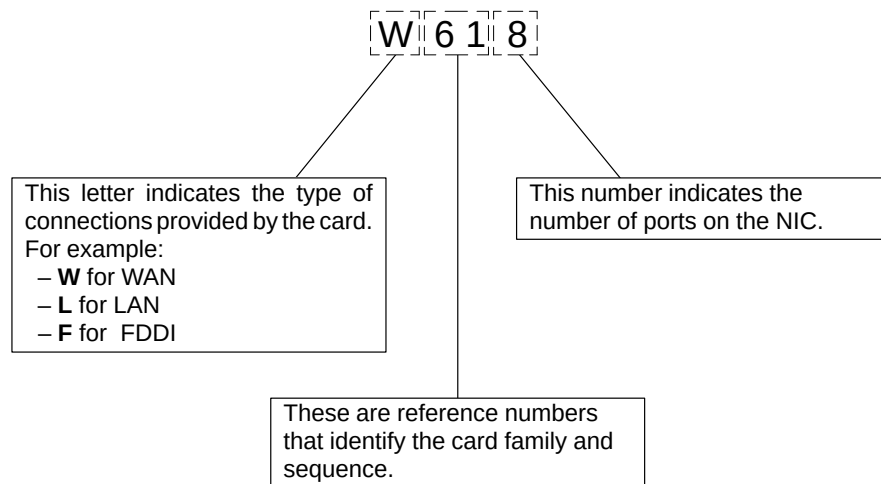
Symbol	Description
 or	Hotswap This symbol identifies the HOTSWAP LED on a NIC. 'Hotswap' means that you can remove and replace the NIC without powering down the system. For more information, refer to the <i>DEC Network Integration Server 600 Installation and Service Manual</i>. NOTE: Some diagrams in the DECNIS 600 documentation show NICs labelled with the lower symbol for 'hotswap'. The upper symbol is the correct symbol used on the NICs.
	Fault This symbol labels a FAULT LED. If there is more than one FAULT LED on a card or module, the LEDs are also numbered.
D1	Dump This symbol identifies the the dump button on the management processor card. For more information, refer to the <i>DEC Network Integration Server 600 Installation and Service Manual</i>.

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4.8 Network Interface Card Reference Names

Each Network Interface Card has a reference name printed on a label on the front of the card. The name consists of a letter followed by three numbers. For example, the reference name on a DEC WANcontroller 618 Network Interface Card is **W618**.

Using W618 as an example, the following figure shows how a reference name is constructed:



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The same reference names are also used by the DECNIS 600 software to identify Network Interface Cards. For example, NCL can be used to return the following information about a card:

W618-6-2

This name identifies port 2 on a DEC WANcontroller 618 installed in slot 6. For more information, refer to the DECNIS 600 software documentation.

A

Recommended Spares

Table A-1 shows the recommended spares for the DECNIS 600 at the time of printing. For a complete and current list of recommended spares, refer to the *Communication Options Minireference* manual.

To order a spare part for the DECNIS 600, use the order number shown in Table A-1.

Table A-1 Recommended Spares

Description	Order Number
Actuator (plastic thumb plate) for Network Interface Card switch	74-42368-01
Actuator retainer (plastic insert that holds thumb plate to Network Interface Card)	74-42773-01
Blank 35 mm panel (blank panel adjacent to slot 9)	74-42407-01
Backplane assembly	70-28724-01
Enclosure (without backplane assembly, power module, or support brackets)	70-28273-01
Enclosure with backplane assembly, power module, and support brackets	DNSXB-AD
Fan and connector	12-23374-12
Fan retaining plate	74-42291-01
Fan tray ¼-turn screw	12-31616-02
Fan tray assembly	70-28725-01
Fan tray harness	17-02507-01
Loopback connector for V.35	12-36233-01
Loopback connector for RS422	12-26259-01
Loopback connector for RS232	12-15336-15

(continued on next page)

Table A–1 (Cont.) Recommended Spares

Description	Order Number
Memory card (2 MB)	B1050-AA
Memory card (8 MB)	B1050-BA
Module slot cover	70-29501-01
Module screw	12-35749-01
Power module (110/220 V)	30-36324-01
Power module plastic front cover	70-29424-01
Power module plastic front cover screw	12-35749-01
Processor card (4 MB) with NV RAM	B1000-BA
Processor card (8 MB) with NV RAM	B1000-AA
Rear panel	74-42284-01
Rear panel thumb screw	90-09116-01
Support kit (DECNIS 600 support brackets)	70-28761-01
DEC LANcontroller 601 (1 N1 Ethernet line)	
DEC LANcontroller 601 Network Interface Card	B1101-AA
Ethernet loopback connector	12-22196-01
DEC LANcontroller 602 (2 N1 Ethernet lines)	
DEC LANcontroller 602 Network Interface Card–Ethernet Thinwire	B1102-BA
DEC LANcontroller 602 Network Interface Card–Ethernet Thickwire	B1103-BA
DEC LANcontroller 602 Network Interface Card–Ethernet Unshielded Twisted Pair (UTP)	B1103-BB

(continued on next page)

Table A–1 (Cont.) Recommended Spares

Description	Order Number
DEC WANcontroller 618 (8 lines at 64K)	
DEC WANcontroller 618 Network Interface Card	B1408-AA
Connecting cable (2 m)	17-02969-01
Loopback connector (50-way male)	12-35447-01
Distribution panel V.24/V.28/RS232	70-28117-02
Distribution panel V.35	70-28117-01
Distribution panel V.36/V.11/RS422	70-28117-03
BT Kilostream adapter cable for V.36/V.11/RS422 distribution panel	BC21G-02
DEC WANcontroller 622 (2 T1/E1 lines)	
DEC WANcontroller 622 Network Interface Card	B1302-AA
RS422 adapter cable	17-01108-00
V.35 adapter cable	17-01112-00
X.21 (leased line only) and BT Kilostream adapter cable	17-01109-00
Loopback connector (50-way female)	12-25852-01

B

Field Replaceable Units

Table B–1 shows the Field Replaceable Units (FRUs) available for the DECNIS 600 at the time of printing. For a complete and current list of FRUs, refer to the *Communication Options Minireference* manual.

To order an FRU, specify the order number shown in Table B–1.

Table B–1 Field Replaceable Units

Description	Order Number
Backplane assembly	70-28724-01
Enclosure (without backplane assembly, power module, or support brackets)	70-28273-01†
Enclosure with backplane assembly, power module, and support brackets	DNSXB-AD†
Fan and connector	12-23374-12
Fan tray harness	17-02507-01
Memory card (2 MB)	B1050-AA
Memory card (8 MB)	B1050-BA
Power module (110/220 V)	30-36324-01
Processor card (4 MB) with NV RAM	B1000-BA
Processor card (8 MB) with NV RAM	B1000-AA
DEC LANcontroller 601 Network Interface Card (1 NI Ethernet line)	B1101-AA
DEC LANcontroller 602 Network Interface Card (2 NI Ethernet lines–Thinwire)	B1102-BA

†This FRU is supplied direct from manufacturing.

(continued on next page)

Table B–1 (Cont.) Field Replaceable Units

Description	Order Number
DEC LANcontroller 602 Network Interface Card (2 NI Ethernet lines–Thickwire)	B1103-BA
DEC LANcontroller 602 Network Interface Card (2 NI Ethernet lines–Twisted Pair)	B1103-BB
DEC WANcontroller 618 Network Interface Card (8 lines at 64K)	B1408-AA
DEC WANcontroller 618 connecting cable (2 m)	17-02969-01
DEC WANcontroller 618 distribution panel V.24/V.28/RS232	70-28117-02
DEC WANcontroller 618 distribution panel V.35	70-28117-01
DEC WANcontroller 618 distribution panel V.36/V.11/RS422	70-28117-03
DEC WANcontroller 622 Network Interface Card (2 T1/E1 lines)	B1302-AA

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