<table>
<thead>
<tr>
<th>REV.</th>
<th>SYM.</th>
<th>SHEET</th>
<th>DESCRIPTION</th>
<th>APPROV. DATE</th>
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<tbody>
<tr>
<td>C</td>
<td>A</td>
<td></td>
<td>Released to Production</td>
<td>G.M. 12.5.75</td>
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<tr>
<td></td>
<td>B</td>
<td></td>
<td>Revised to include Five-Wide and Parity Option</td>
<td>G.M. 3.16.76</td>
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<tr>
<td></td>
<td>C</td>
<td></td>
<td>ECN 895</td>
<td>G.M. 9.21.76</td>
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</table>

**PRODUCT SPECIFICATION**

FIVE-WIDE & NINE-WIDE CONNECTOR ASSEMBLIES

**DATARAM CORPORATION**

PRINCETON, NEW JERSEY

DRAWN DATE
MAS 12-3-75

CHF: DATE
H 12-4-75

ENG: DATE
G.M. 12-4-75

APPROVED DATE
12-4-75

Dwg. No. 02049

SHEET 1 OF 13
1.0 INTRODUCTION

The specification defines the electrical and mechanical characteristics of the Five-Wide and Nine-Wide connector assemblies produced by Dataram Corporation, Cranbury, New Jersey.

2.0 GENERAL

The Five-Wide and Nine-Wide connector assemblies are designed to operate in the following Digital Equipment Corporation (DEC*) computers and expander boxes:

<table>
<thead>
<tr>
<th>Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC, ND, SC, SD</td>
</tr>
<tr>
<td>JC, JD, JE, JF</td>
</tr>
<tr>
<td>FC, FL, FM</td>
</tr>
</tbody>
</table>

1. PDP-11/05*-11/10 (10⅛ inch box)
2. PDP-11/35 (10⅛ inch box)
3. PDP-11/35-11/40 (21 inch expander box) Serial No. 0001 through 5999
4. PDP-11/35-11/40 (21 inch expander box) Serial No. 6000 and Up
5. PDP-11/45 Mainframe

3.0 VERSIONS

3.1 Nine-Wide Connector Assembly with No Parity

DRC 61105 and DRC 61114

The Nine-Wide connector assembly can be supplied in two basic versions. The first (DRC P/N 61105) consists of 54 connectors and can be configured with different combinations of DRC DR-111 memory systems, DEC MM11-L memory systems and DEC Peripheral Controller assemblies. The second version (DRC P/N 61114) consists of 32 connectors and can be configured with DRC DR-111 memory systems only.

3.2 Nine-Wide Connector Assembly with Parity - DRC 61125

Parity core memory is similar to non-parity. It is available to check the integrity of stored data. All of the extra control logic is contained on a module called Parity Control (DRC 61122) which is installed in a pre-assigned slot.

The Nine-Wide connector assembly with parity (DRC 61125) consists of 32 connectors and can be configured with DRC DR-111P parity memory systems only.

*DEC and PDP-11 are registered trademarks of Digital Equipment Corporation.
3.3 **Five-Wide Connector Assembly with No Parity - DRC 61123**

The Five-Wide connector assembly with no parity (DRC 61123) consists of 20 connectors and can be configured with DR-111 memory systems only.

3.4 **Five-Wide Connector Assembly with Parity - DRC 61124**

The Five-Wide connector assembly with parity (DRC 61124) consists of 20 connectors and can be configured with DRC DR-111P parity memory systems only.

3.5 **All Versions - Power Connections**

All connector assemblies connect to the PDP-11 power bus via a nine pin AMP MATE-N-LOK connector. Certain configurations of the PDP-11 computer require different styles of the AMP MATE-N-LOK connectors for power connections. An adapter power cable is supplied with the Nine-Wide Connector Block to accommodate these configurations.

The following is a list of computer configurations and required power cable assemblies:

<table>
<thead>
<tr>
<th>Computer Configuration</th>
<th>Adapter Power Cable Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. PDP-11/05, 11/10 (10½&quot; Box) Models NC,ND,SC,SD</td>
<td>None</td>
</tr>
<tr>
<td>B. PDP-11/35 (10½&quot; Box) Models JC,JD,JE,JF</td>
<td>None</td>
</tr>
<tr>
<td>C. PDP-11/35, 11/40 (21&quot; Expander Box) Serial No. 0001 through 5999</td>
<td>None</td>
</tr>
<tr>
<td>D. PDP-11/35, 11/40 (21&quot; Expander Box) Serial No. 6000 and Up Models FC,FL,FM</td>
<td>P/N 61117</td>
</tr>
<tr>
<td>E. PDP-11/45 Mainframe</td>
<td>P/N 61118</td>
</tr>
</tbody>
</table>

4.0 **ELECTRICAL**

All electrical interconnections are made using a printed wiring board and wirewrap jumpers. A cable is used to connect the power supplies to the printed wiring board.

4.1 **Nine-Wide Connector Assembly**

The printed wiring board can contain up to fifty-four (54) printed circuit connectors containing thirty-six (36) contacts each. These are laid out in nine (9) rows of six (6) connectors each. Each row of six (6) connectors is identified as connectors A,B,C,D,E and F with connectors A and B in each row carrying the UNIBUS* signals. Connectors C,D,E and F in Rows 1,2 and 3 are pre-wired to accept DEC MM11-L/MM11-K memory modules or the Dataram DR-111.

*UNIBUS is a registered trademark of Digital Equipment Corporation.
Connectors C, D, E and F in Rows 4, 5 and 6 are also pre-wired to accept the MM11-L/MM11-K or the DR-111 memory module.

Connectors C, D, E and F in Rows 1, 2 and 3 and C, D, E and F in Rows 4, 5 and 6 are not interconnected.

Connectors C, D, E and F in Rows 7 and 8 are pre-wired to accept a small peripheral controller in each row.

Connectors C, D, E and F in Row 9 are pre-wired to accept the Dataram 61122 Parity Control module. Different wirewrap jumper arrangements are used for parity and non-parity operation.

UNIBUS signals MUST enter the Nine-Wide connector assembly in Row 1, Connectors A and B. If the connector assembly represents the end of the UNIBUS chain, a bus terminator card must be installed in Row 9, Connectors A and B. If the chain is to be continued, the UNIBUS cable exiting the connector assembly must be installed in Row 9, Connectors A and B.

4.2 Five-Wide Connector Assembly

The Five-Wide printed wiring board contains twenty (20) printed circuit connectors. These are laid out in five (5) rows with a maximum of six (6) connectors each. Each row of six (6) connectors is identified as Connector A, B, C, D, E and F with connectors A and B in each row carrying the UNIBUS signals. Connectors C, D, E and F in Row 1 are prewired to accept the Dataram 61122 Parity Control module. Different wirewrap jumper arrangements are used for parity and non-parity operation.

UNIBUS signals MUST enter the Five-Wide connector assembly in Row 1, Connectors A and B. If the connector assembly represents the end of the UNIBUS chain, a bus terminator card must be installed in Row 5, Connectors A and B. If the chain is to be continued, the UNIBUS cable exiting the connector assembly must be installed in Row 5, Connectors A and B.

4.3 Bus Grant Continuity for Nine-Wide Connector Assembly

Continuity of Bus Grant signals between Row 1, Connectors A and B and Row 9, Connectors A and B must be provided. This is accomplished for the two basic versions as follows.
4.3.1 Fully Loaded Version (54 Connectors)

In this version, continuity is provided by installing one of the following (in any combination) in Connector D, Rows 7, 8 and 9.

A) Bus Grant Continuity Card, Dataram Corporation Part Number 61115 (DEC G727)

B) Memory Module, Dataram Corporation Model DR-111 (uses all 6 connectors)

C) Small Peripheral Controller (SPC)

4.3.2 Partially Loaded Version (32 Connectors)

In this version, Bus Grant continuity is pre-wired.

4.4 Power Connection to Connector Assembly

Power for the Nine-Wide Connector Assembly is connected via AMP MATE-N-LOK 9 pin connectors which are hardwired to the pin side of the printed wiring board. Further versatility is accomplished (as shown in installation drawings) with an adapter power cable assembly.

5.0 CONFIGURATIONS

5.1 Nine-Wide Connector Assembly Configuration

Sheets 7, 8 and 9 explain the different possibilities of configuring the Nine-Wide Connector Assembly.

NOTE: When installing the DEC MM11-K or MM11-L memory modules, care must be taken to ensure the proper order as shown in configurations 4 and 5.

5.2 Five-Wide Connector Assembly Configuration

Sheet 9 explains the different possibilities of configuring the Five-Wide Connector Assembly.

6.0 MECHANICAL AND INSTALLATIONS

The Connector Assembly utilizes a standard thickness (.062) printed wiring board. This board is mounted to aluminum cross members which are, in turn, interconnected to form a rigid module measuring 1.65 x 4.84 x 16.50 inches for the Nine-Wide and 1.65 x 2.84 x 16.50 inches for the Five-Wide.

The printed circuit connectors used in the Connector Assembly are compatible with Digital Equipment Corporation's family of connectors.
Care should be taken to insure proper installation of UNIBUS cable and terminator card (when required) when the connector assembly is installed into its appropriate housing.

Utilization of the connector assembly is shown on Pages 7 through 9. Typical installation within the various types of mounting assemblies are shown on Pages 10 through 12.

7.0 ORDERING INFORMATION

The following list specifies the DRC part numbers and DEC equivalents for the Connector Assembly and accessories.

<table>
<thead>
<tr>
<th>Description</th>
<th>DRC P/N</th>
<th>DEC P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nine-Wide Conn Assy, 54 conn.</td>
<td>61105</td>
<td>None</td>
</tr>
<tr>
<td>Nine-Wide Conn Assy, 32 conn.</td>
<td>61114</td>
<td>MF11-L or MF11-U</td>
</tr>
<tr>
<td>Nine-Wide Conn Assy w/Parity, 32 conn.</td>
<td>61125</td>
<td>MF11-LP or MF11-UP</td>
</tr>
<tr>
<td>Five-Wide Conn Assy, 20 conn.</td>
<td>61123</td>
<td>None</td>
</tr>
<tr>
<td>Five-Wide Conn Assy w/Parity, 20 conn.</td>
<td>61124</td>
<td>None</td>
</tr>
<tr>
<td>UNIBUS Terminator Module (Standard)</td>
<td>61119</td>
<td>M930</td>
</tr>
<tr>
<td>UNIBUS Terminator Module (Offset)</td>
<td>61106</td>
<td>None</td>
</tr>
<tr>
<td>UNIBUS Jumper Module w/o Terminators</td>
<td>61107</td>
<td>M920</td>
</tr>
<tr>
<td>UNIBUS Jumper Module w/Terminators</td>
<td>61110</td>
<td>M981</td>
</tr>
<tr>
<td>Adapter Power Cable, Version 1</td>
<td>61117</td>
<td>N/A</td>
</tr>
<tr>
<td>Adapter Power Cable, Version 2</td>
<td>61118</td>
<td>N/A</td>
</tr>
<tr>
<td>Bus Grant Continuity Card</td>
<td>61115</td>
<td>G727</td>
</tr>
<tr>
<td>UNIBUS Cable 5 ft.</td>
<td>61111</td>
<td>BC11A-5</td>
</tr>
<tr>
<td>DR-111, 16K x 16 Core Memory</td>
<td>61101</td>
<td>MM11-L</td>
</tr>
<tr>
<td>DR-111, 16K x 18 Parity Memory</td>
<td>61113</td>
<td>MM11-LP</td>
</tr>
<tr>
<td>Parity Control</td>
<td>61112</td>
<td>None</td>
</tr>
</tbody>
</table>
** UNIBUS IN, Row 1, A & B

* UNIBUS OUT, Row 9, A & B. When DR-111 system is plugged into Slot 8, DRC 61101 Terminator Module must be used in place of M930.
** UNIBUS IN, Row 1, A & B  
* UNIBUS OUT, Row 9, A & B. When DR-111 system is plugged into Slot 8, DRC 61106 Terminator Module must be used in place of M930.
** UNIBUS IN, Row 1, A & B
* UNIBUS OUT, Row 9 or 5, A & B
COMONENTS ON CIRCUIT BOARD'S FACE

BACKPLANE OPTIONAL MOUNTING LOCATIONS

POWER CABLE PLUGS INTO J3, J4, OR J5 (9 PIN CONNECTORS)

UNIBUS

A B C D E F

J1 J2 J3 J4 J5

FRONT PANEL

THIS VIEW IS LOOKING AT PIN SIDE OF CONNECTOR BACKPLANE

USE IN PDP 11/05 (10 1/2 INCH BOX) MODELS NC, ND, SC, & SD

PDP 11/35 (10 1/2 INCH BOX) MODELS JC, JD, JE, & JF

2. FOR THESE INSTALLATIONS AN ADAPTOR POWER CABLE MUST BE USED.
PART NO. 61117

COMPONENTS FACE

LEFT SIDE
CIRCUIT BOARDS
PLUG INTO THIS SIDE

FRONT

BACKPLANE OPTIMAL MTG.
LOCATIONS

RIGHT SIDE
PIN SIDE OF CONNS

POWER & ADAPTOR CABLE

UNIBUS
A B C D E F

USE IN PDP 11/35-11/40 21 INCH EXPANDER BOXES
S/N 6000 AND UP
MODELS FC, FL, FM
RIGHT SIDE PIN SIDE OF CONN'S

BACKPLANE OPTIONAL NIC LOCATIONS

A B C D E F

POWER CABLE


USE IN PDP 11/35-1/40 21 INCH EXPANDER BOXES S/N 0001 THRU 5999

POWER CABLE CONNECTOR PANEL

COMPONENTS FACE

FRONT

LEFT SIDE CIRCUIT BOARDS PLUG IN THIS SIDE
THIS VIEW IS LOOKING AT PIN SIDE OF BACKPLANE.

NOTES:
1. IN CONNECTORS C, D, E, F, SIGNALS (EXCEPT VOLTAGES) IN ROWS 1, 2, 4, 6 ARE NOT CONNECTED TO SIGNALS WITH LIKE NAMES IN ROWS A, B, G.

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES O/L 0.010
FRACTIONS ARE IN 0.001 ANGLES IN DEGREES
A

DATA RAM CORPORATION
NEW JERSEY

SCHHEMATIC —
9 WIDE CONNECTOR ASSEMBLY

ELLSIJ STREET DRAWING
DATE
504048 A

WHEN REFERENCING THIS DRAWING, STATE DRAWING NO., APPROPRIATE REVISION LETTER IT IS, AND DATE.