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MOTOROLA

MVME710/D1

SEPTEMBER 1987

MVME710

8-CHANNEL SERIAL I/O

DISTRIBUTION MODULE

USER'S MANUAL

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First Edition

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SAFETY SUMMARY
SAFETY DEPENDS ON YOU

The following general safety precautions must be observed during all phases of operation, service, and repair of this equipment. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the equipment. Motorola Inc. assumes no liability for the customer's failure to comply with these requirements. The safety precautions listed below represent warnings of certain dangers of which we are aware. You, as the user of the product, should follow these warnings and all other safety precautions necessary for the safe operation of the equipment in your operating environment.

GROUND THE INSTRUMENT.

To minimize shock hazard, the equipment chassis and enclosure must be connected to an electrical ground. The equipment is supplied with a three-conductor ac power cable. The power cable must either be plugged into an approved three-contact electrical outlet or used with a three-contact to two-contact adapter, with the grounding wire (green) firmly connected to an electrical ground (safety ground) at the power outlet. The power jack and mating plug of the power cable meet International Electrotechnical Commission (IEC) safety standards.

DO NOT OPERATE IN AN EXPLOSIVE ATMOSPHERE.

Do not operate the equipment in the presence of flammable gases or fumes. Operation of any electrical equipment in such an environment constitutes a definite safety hazard.

KEEP AWAY FROM LIVE CIRCUITS.

Operating personnel must not remove equipment covers. Only Factory Authorized Service Personnel or other qualified maintenance personnel may remove equipment covers for internal subassembly or component replacement or any internal adjustment. Do not replace components with power cable connected. Under certain conditions, dangerous voltages may exist even with the power cable removed. To avoid injuries, always disconnect power and discharge circuits before touching them.

DO NOT SERVICE OR ADJUST ALONE.

Do not attempt internal service or adjustment unless another person, capable of rendering first aid and resuscitation, is present.

USE CAUTION WHEN EXPOSING OR HANDLING THE CRT.

Breakage of the Cathode-Ray Tube (CRT) causes a high-velocity scattering of glass fragments (implosion). To prevent CRT implosion, avoid rough handling or jarring of the equipment. Handling of the CRT should be done only by qualified maintenance personnel using approved safety mask and gloves.

DO NOT SUBSTITUTE PARTS OR MODIFY EQUIPMENT.

Because of the danger of introducing additional hazards, do not install substitute parts or perform any unauthorized modification of the equipment. Contact Motorola Microsystems Warranty and Repair for service and repair to ensure that safety features are maintained.

DANGEROUS PROCEDURE WARNINGS.

Warnings, such as the example below, precede potentially dangerous procedures throughout this manual. Instructions contained in the warnings must be followed. You should also employ all other safety precautions which you deem necessary for the operation of the equipment in your operating environment.

WARNING

Dangerous voltages, capable of causing death, are present in this equipment. Use extreme caution when handling, testing, and adjusting.

PREFACE

Unless otherwise specified, all address references are in hexadecimal throughout this manual.

An asterisk (*) following the signal name for signals which are level significant denotes that the signal is true or valid when the signal is low.

An asterisk (*) following the signal name for signals which are edge significant denotes that the actions initiated by that signal occur on a high to low transition.

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CHAPTER 1

GENERAL INFORMATION

1.1 INTRODUCTION

This user manual provides general information, hardware preparation and support information for the MVME710 8-Channel Serial I/O Distribution Module (hereafter referred to as the MVME710).

NOTE: References to MVME332 also apply to MVME332XT.

1.2 SPECIFICATIONS

The MVME710 specifications are detailed in the following table.

TABLE 1-1. MVME710 Specifications

Characteristic	Specification
Serial port configurations	Each serial port may be configured in the "Connect to Terminal" (DCE) or the "Connect to Modem" (DTE) mode via jumper arrays.
Supported RS-232C signals and corresponding connector pin numbers	PGND - protective ground (1) TxD - transmit data (2) RxD - receive data (3) RTS - request to send (4) CTS - clear to send (5) DSR - data set ready (6) SGND - signal ground (7) DCD - data carrier detect (8) DTR - data terminal ready (20)
Physical dimensions	Double height/reduced depth VMEmodule Board size: 9.19 x 3.15 in. (233 x 80 mm) Front panel size: 10.3 x 1.56 in. (262 x 40 mm)
Connectors	One DIN 41612 C64 for ribbon cable interconnect with the MVME332 Eight sub-D 25 conductor serial I/O connectors
Power requirements	No power consumed at +5, +12, -12 VDC

TABLE 1-1. MVME710 Specifications (cont'd)

Characteristic	Specification
Environmental	Operating: 0 to +55 degrees C 0 to 90% humidity (noncondensing) Storage: -40 to +85 degrees C
Configuration as shipped	All 8 ports configured "Connect to Modem" with all relevant handshakes

NOTE: PGND is an EIA RS-232C specification term that typically refers to equipment chassis ground, and may refer to the ground lead on the system's 3-wire AC power connection, depending upon chassis AC wiring. In any case, the MVME710 PGND signal is not connected to the SGND signal.

1.3 GENERAL DESCRIPTION

The MVME710 provides a convenient adapter between the user's DB25 Serial I/O cable connectors and the MVME332 Intelligent Serial I/O module. The MVME710 connects to the MVME332 via a DIN 41612 C64 connector and 64 conductor ribbon cable connection scheme. Eight standard 25 conductor subminiature D-type connectors (DB25s) are mounted on the MVME710's extruded front panel for user serial I/O equipment connection.

Each of the serial ports on the MVME710 can be configured in either the "Connect to Terminal" (as a DCE) or the "Connect to Modem" (as a DTE) configuration via the jumper array associated with each port. Note that each MVME710 serial port is completely independent and, therefore, will support many different user configurations per MVME710. The "Connect to Terminal" configuration supports most terminal equipment and serial printers. The "Connect to Modem" configuration is useful for interfacing modems or other computer serial ports with the MVME332.

Note that the MVME332 and MVME710 support only RS-232C electrically compatible equipment in the aforementioned configurations. Because the MVME332's I/O is already RS-232C compatible, the MVME710 merely provides a convenient RS-232C interconnect strategy but incorporates no active circuitry.

1.4 RELATED DOCUMENTATION

The following publications may provide additional information. If not shipped with this product, they may be purchased from Motorola's Literature Distribution Center, 616 West 24th Street, Tempe, AZ 85282; telephone (602) 994-6561.

DOCUMENT TITLE	MOTOROLA PUBLICATION NUMBER
VMEbus Specification Manual	HB212/D
MVME332 Intelligent Communication Controller User's Manual	MVME332

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CHAPTER 2

HARDWARE PREPARATION

2.1 INTRODUCTION

This chapter provides hardware preparation and installation instructions for the MVME710 module.

2.2 HARDWARE PREPARATION

Before installing the MVME710, each channel must be configured for the intended application. Figure 2-1 shows the header locations and factory configured jumper settings for the MVME710; Table 2-1 identifies the headers associated with each serial port for both "Connect to Modem" and "Connect to Terminal".

The MVME710 module is shipped with all channels configured for modem use. Table 2-2 shows the "Connect to Modem" configuration for any channel, while Table 2-3 provides the "Connect to Terminal" configuration.

TABLE 2-1. Serial Port and Associated Header Identification

Serial Port #	Associated "Connect to Terminal" Jumper Array	Associated "Connect to Modem" Jumper Array
1	J21	J22
2	J23	J24
3	J17	J18
4	J19	J20
5	J13	J14
6	J15	J16
7	J9	J10
8	J11	J12

2

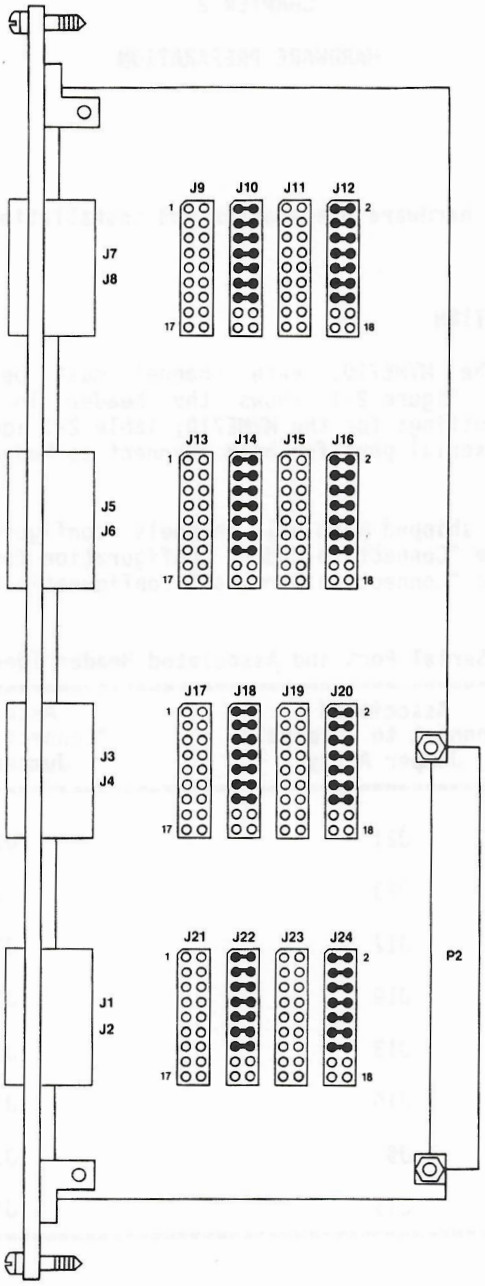


FIGURE 2-1. MVME710 Header Locations and Factory-Configured Jumper Settings

EXAMPLES:

a. To configure serial port 8 for DCE modem interface with a standard, full duplex cable (including all handshakes), Table 2-1 indicates that the J12 header will require jumpering, according to the "Connect to Modem" jumpering table (refer to Table 2-2).

b. To configure serial port 5 for DTE terminal interface with standard, full duplex cabling (including all handshakes), Table 2-1 indicates that the J13 header will require jumpering according to the "Connect to Terminal" jumpering table (refer to Table 2-3). Some terminals may not require the DCD signal; therefore, the jumper at 11-12 may be omitted.

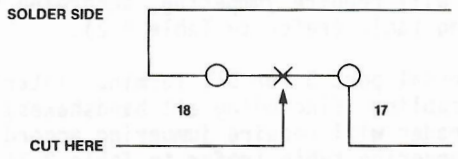
TABLE 2-2. "Connect to Modem" Configuration

Jumper Pair	Functional Description When Connected
1 - 2	connects MVME332 RxD to DB25 RxD, pin 3
3 - 4	connects MVME332 TxD to DB25 TxD, pin 2
5 - 6	connects MVME332 CTS to DB25 CTS, pin 5
7 - 8	connects MVME332 RTS to DB25 RTS, pin 4
9 - 10	connects MVME332 DTR to DB25 DTR, pin 20
11 - 12	connects MVME332 DCD to DB25 DCD, pin 8
13 - 14	no function
15 - 16	connects MVME332 signal GND to DB25 signal GND, pin 7 (NOTE)
17 - 18	connects MVME710 front panel, which is chassis GND, to DB25 pin 1 (NOTE)

NOTE: These connections are actually made by traces on the MVME710 circuit board, regardless of jumper installation at this location. If the user wishes to break either of these connections, the associated trace may be cut between the header pins (refer to the following example).

EXAMPLE:

To disconnect the VME system chassis ground from any MVME710 DB25 serial port connector, pin 1:



Pin Location for Trace Cut

Locate jumper pins 17 and 18 of the jumper array associated with the port to be modified (pay attention to that port's configuration, i.e., "Connect to Terminal" or "Connect to Modem"). Cut the trace (located on the solder side, not the component side of the board) between pins 17 and 18 with a sharp instrument. Make sure that the jumper block on these pins on the component side has been removed, and test for discontinuity between these pins with an ohmmeter. Reconnection can be made at any time by installing a jumper block on the same pins.

TABLE 2-3. "Connect to Terminal" Configuration

Jumper Pair	Functional Description When Connected
1 - 2	connects MVME332 RxD to DB25 TxD, pin 2
3 - 4	connects MVME332 TxD to DB25 RxD, pin 3
5 - 6	connects MVME332 CTS to DB25 RTS, pin 4
7 - 8	connects MVME332 RTS to DB25 CTS, pin 5
9 - 10	connects MVME332 DTR to DB25 DSR, pin 6
11 - 12	connects MVME332 DCD to DB25 DCD, pin 8
13 - 14	connects MVME332 DCD to DB25 DTR, pin 20
15 - 16	connects MVME332 signal GND to DB25 signal GND, pin 7 (NOTE)
17 - 18	connects MVME710 front panel, which is chassis GND, to DB25 pin 1 (NOTE)

NOTE: These connections are actually made by traces on the MVME710 circuit board, regardless of jumper installation at this location. If the user wishes to break either of these connections, the associated trace may be cut between the header pins (refer to preceding example for trace cut procedure).

2.3 INSTALLATION

Before installing the module and connecting the cable, turn all equipment power OFF.

CAUTION

INSERTING/REMOVING MODULES WHILE POWER IS APPLIED COULD RESULT IN DAMAGE TO MODULE COMPONENTS.

The MVME710 can be installed wherever appropriate in any double height VME chassis and is secured in place with screws at the top and bottom of the front panel. The form factor of the MVME710 is such that the depth of the module is approximately half of a standard VMEmodule. Therefore, the MVME710 does not connect into the backplane of the VME chassis.

The MVME710 connects to the MVME332 via a 64-pin ribbon cable that is plugged into the P2 connectors on the MVME710 and the MVME332. Make certain that Pin 1 on the cable aligns with Pin 1 on the connectors. Pin 1 on the cable is identified by the red stripe along the edge of the ribbon cable.

Once installation is complete, turn the equipment power ON.

2

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CHAPTER 3

SUPPORT INFORMATION

3.1 INTRODUCTION

This chapter provides the interconnection signals, parts list with parts location illustration, and schematic diagrams for the MVME710 transition module.

3.2 INTERCONNECT SIGNALS

Connector P2 provides the interface to the MVME332. Table 3-1 lists each pin connection and signal mnemonic for the connector.

TABLE 3-1. Connector P2 Interconnect Signals

PIN NUMBER	ROW A SIGNALS	ROW C SIGNALS
1	signal GND	DCD8
2	RTS8	DTR8
3	TxD8	CTS8
4	DCD7	RxD8
5	DTR7	signal GND
6	CTS7	RTS7
7	RxD7	TxD7
8	signal GND	DCD6
9	RTS6	DTR6
10	TxD6	CTS6
11	DCD5	RxD6
12	DTR5	signal GND
13	CTS5	RTS5
14	RxD5	TxD5
15	not used	not used
16	signal GND	DCD4
17	RTS4	DTR4
18	TxD4	CTS4
19	not used	RxD4
20	DCD3	not used
21	DTR3	signal GND
22	CTS3	RTS3
23	RxD3	TxD3
24	not used	not used
25	signal GND	DCD2
26	RTS2	DTR2
27	TxD2	CTS2
28	not used	RxD2

TABLE 3-1. Connector P2 Interconnect Signals (cont'd)

PIN NUMBER	ROW A SIGNALS	ROW C SIGNALS
29	DCD1	not used
30	DTR1	signal GND
31	CTS1	RTS1
32	RxD1	TxD1

NOTE: The P2 connector row B signals are defined by the VMEbus specification for power, address, and data lines; therefore, they are unavailable for user I/O.

3.3 PARTS LIST

The parts list for the distribution board is provided in Table 3-2; a parts location diagram is provided in Figure 3-1.

TABLE 3-2. MVME710 Module Parts List

REFERENCE DESIGNATION	MOTOROLA PART NUMBER	DESCRIPTION
--	84-W8451B01	Printed wiring board assembly, MVME332 transition
J1-J8	28NW9802G58	Connector, dual, 25-pin, right angle (4 req'd)
J9-J24	29NW9805C07	Pin, 0.025-inch square, gold, auto-insert
--	29NW9805C26	Jumper, insulated, double row, 14-pin (8 req'd) used at J10 (1-14), J12 (1-14), J14 (1-14), J16 (1-14), J18 (1-14), J20 (1-14), J22 (1-14), J24 (1-14)
--	29NW9805B17	Jumper, insulated, shorting (56 req'd) used at J10(1-2)(3-4)(5-6)(7-8)(9-10)(11-12)(13-14), J12(1-2)(3-4)(5-6)(7-8)(9-10)(11-12)(13-14), J14(1-2)(3-4)(5-6)(7-8)(9-10)(11-12)(13-14), J16(1-2)(3-4)(5-6)(7-8)(9-10)(11-12)(13-14), J18(1-2)(3-4)(5-6)(7-8)(9-10)(11-12)(13-14), J20(1-2)(3-4)(5-6)(7-8)(9-10)(11-12)(13-14), J22(1-2)(3-4)(5-6)(7-8)(9-10)(11-12)(13-14), J24(1-2)(3-4)(5-6)(7-8)(9-10)(11-12)(13-14)
--	64-W5146B01	Front panel, MVME322 transition

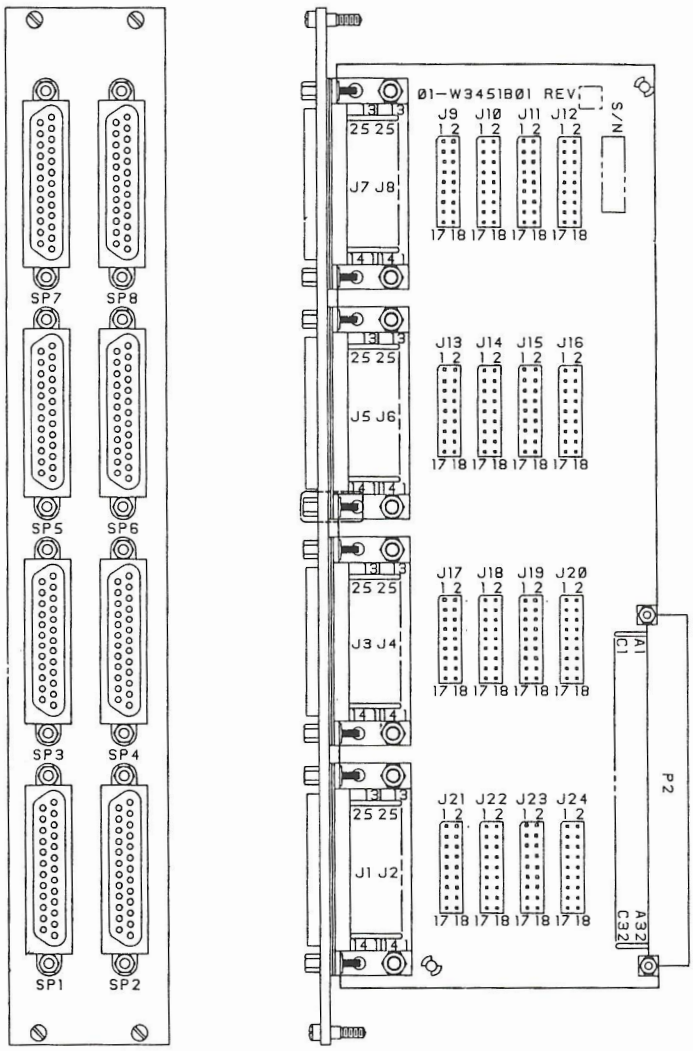


FIGURE 3-1. MVME710 Transition Module Parts Location Diagram

3.4 SCHEMATIC DIAGRAMS

Figure 3-2 illustrates the schematic diagram for the MVME710.

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