REV	EO	DESCRIPTION	DWN	CHKD	APPD	DATE
A	9402	NEW RELEASE	NAG			11/9/79
B	9792	INCORP. E.O.	RB			7-10-80

UNINCORPORATED ENGINEERING ORDERS	

PREPARED	DATE
N. Graebing	9-25-79
CHECKER	10/2/79
ENGINEER.	10/30/79
APPD	10/30/79
APPD	11/1/79
APPD	11/8/79
RECORDS	MLJ 7-10-80

TITLE

PRODUCT SPECIFICATION -
1600 BACKPLANE FOR
MOS MEMORY

Microdata
IRVINE, CALIFORNIA

IDENT CODE	DWG SIZE		REV
52936	A	PS20001279	B
		SHEET 1 OF 11	

Form 3-132-1

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1.0 INTRODUCTION

1.1 SCOPE

This specification describes a 1600 backplane which is designed to support the 8K ROM board, four MOS memory array boards and a memory control board, and the standard 1600 series I/O controllers. Core memory boards may not be used with this backplane.

1.2 REFERENCES

- 8K ROM Product Specification — PS20001278
- Operation and Maintenance Instruction Manual for 1600 Series Computers — TM20001600
- Microdata 1600 Computer Interface Manual — IM20001600

1.3 ABBREVIATIONS

Table 1 defines the abbreviations used throughout this specification.

Abbreviation	Meaning
ROM	Read Only Memory
ACM	Alterable Control Memory
I/O	Input/Output
CPU	Central Processing Unit
AROM	Alterable Read Only Memory
GND	Ground
K	1024

TABLE 1

2.0 FUNCTIONAL DESCRIPTION

2.1 GENERAL

The backplane is designed to accept up to 19 130-pin connectors (CS20001450) which mate with the standard 1600 series printed circuit modules. Appropriate etch is designed into the backplane to provide all necessary logic signals and voltage levels to the connectors. In addition, certain E-points will be provided to support the options described in paragraph 2.3.

2.2 FEATURES

The purpose of the backplane is to provide a means of connecting the 1600 CPU (consisting of a Control Board and Data Board) or the 2239 single board CPU with the firmware board, memory modules and I/O controllers. The backplane design requires assignment of specific boards to some connector positions. Backplane assignments are as follows:

Connector Position	Function
1	8K ROM Board
2	Control Board or 2239 Processor
3	Data Board
4	MOS Memory Array Board
5	MOS Memory Array Board
6	MOS Memory Array Board
7	MOS Memory Array Board
8	Memory Control Board
9	I/O Controller
10	I/O Controller
11	I/O Controller
12	I/O Controller
13	I/O Controller
14	I/O Controller
15	I/O Controller
16	I/O Controller
17	I/O Controller
18	I/O Controller
19	I/O Controller

2.2.1 Power Connection

The backplane supplies the appropriate voltages to the connector positions by means of etch and voltage planes. The voltages supplied are:

-16.75 Volts (CPU)
+12 Volts (CPU)
+5 Volts (CPU)
GROUND
-5 Volts (Memory)
+12 Volts (Memory)
+5 Volts (Memory)

The various voltages are supplied to the backplane by means of a cable assembly that connects to AMP connectors directly on the backplane.

2.2.2 Signal Termination

Terminating circuits will be provided on the backplane to terminate the following signals:

M00A/	DMAR/	MD00	DMAS /	MUA0/
M01A/	N00A/	MD01	A00L/	MUA1/
M02A/	N01A/	MD02	A01L/	MUA2/
M03A/	N02A/	MD03	A02L/	
M04A/	N03A/	MD04	A03L/	
M05A/	N04A/	MD05	A04L/	
M06A/	N05A/	MD06	A05L/	
M07A/	N06A/	MD07	A06L/	
READ	N07A/	MD08	A07L/	
		DMAW/		

2.3 OPTIONS

2.3.1 Alterable Control Memory System

The backplane can support a system containing AROM boards with the addition of jumpers and the backplane modifications as described in PS20001228. The jumpers between designated E-points result in the extension of signals L00X-L11X, RS00-RS15 and CPEN/ from connector position three to connector positions 6-19. The E-points are located between connector positions three and four.

APPENDIX A

CONNECTOR J1 SIGNAL LIST

A	PIN	B
GND	01	+5 Volts
GND	02	+5 Volts
TTIN/	03	
MAU1/	04	RUNX
MAU2/	05	CLKF/
CPH1	06	STPF/
RUNF/	07	M04A/
	08	MUA0/
N07A/	09	M06A/
OD05/	10	OD01/
M01A/	11	A04L/
M02A/	12	
A00L/	13	M03A/
A01L/	14	M00A/
N06A/	15	RS00
L00X	16	
L11X	17	RS04
L04X	18	M05A/
RS01	19	L10X
L01X	20	
	21	RS05
L05X	22	CPH2/
RS02	23	
L02X	24	MERR/
L06X	25	RS06
OD02/	26	OD06/
RS03	27	
L03X	28	
A02L/	29	RS07
L07X	30	
I02X/	31	I01X/
ID04/	32	ID00/
CPEN/	33	L08X

A	PIN	B
A03L/	34	
	35	L09X
	36	RS08
RS09	37	OD04/
EINT/	38	A05L/
RINH/	39	OD00/
CG1B/	40	
CSTP/	41	A06L/
RS10	42	ECIO/
RS11	43	SP2
DMAR/	44	MRST/
DMAS/	45	ES06/
INTF/	46	SP7
RS13	47	M07A/
RS14	48	A07L/
CONT	49	ES05/
N03A/	50	INLR
RS12	51	N00A/
	52	PRST
N04A/	53	N01A/
N05A/	54	MPSS/
MPRF/	55	N02A/
DMAW/	56	ES04/
ES07/	57	AENP/
OD07/	58	OD03/
RS15	59	ID05/
ID01/	60	CPH2/
ID06/	61	I03X/
ID03/	62	ID02/
SCAN/	63	RPSS/
GND	64	+5 Volts
GND	65	+5 Volts

APPENDIX B

CONNECTOR J2 SIGNAL LIST

A	PIN	B
GND	01	+5 Volts
GND	02	+5 Volts
PWRD/	03	
	04	RUNX
	05	CLKF/
CPH1	06	STPF/
RUNF/	07	M04A/
	08	
N07A/	09	M06A/
OD05/	10	OD01/
M01A/	11	A04L/
M02A/	12	MINT/
A00L/	13	M03A/
A01L/	14	M00A/
N06A/	15	RS00
L00X	16	
L11X	17	RS04
L04X	18	M05A/
RS01	19	L10X
L01X	20	MINTA/
WTXX/	21	RS05
L05X	22	CPH2/
RS02	23	READ
L02X	24	MERR/
L06X	25	RS06
OD02/	26	OD06/
RS03	27	
L03X	28	
A02L/	29	RS07
L07X	30	
I02X/	31	I01X/
ID04/	32	ID00/
CPEN/	33	L08X

A	PIN	B
A03L	34	
	35	L09X
	36	RS08
RS09	37	OD04/
EINT/	38	A05L/
RINH/	39	OD00/
CG1B/	40	
CSTP/	41	A06L/
RS10	42	ECIO/
RS11	43	
DMAR/	44	MRST/
DMAS/	45	ES06/
INTF/	46	TTIN/
RS13	47	M07A/
RS14	48	A07L/
CONT	49	
N03A	50	INLR
RS12	51	N00A/
ES05/	52	ES04/
N04A/	53	N01A/
N05A/	54	ES07/
AENP/	55	N02A/
DMAW/	56	
MBSY	57	
OD07/	58	OD03/
RS15	59	
	60	
	61	
	62	
SCAN/	63	MCLK/
GND	64	+5 Volts
GND	65	+5 Volts

APPENDIX C

CONNECTOR J3 SIGNAL LIST

A	PIN	B	A	PIN	B
GND	01	+5 Volts	A03L/	34	MD00
GND	02	+5 Volts	MD01	35	L09X
PWRD/	03		MD04	36	RS08
	04	MAU2/	RS09	37	OD04/
	05	SPARE	EINT/	38	A05L/
CPH1	06	MAU1/		39	OD00/
MUA0/	07	M04A/		40	MD06
	08	MPAR/	CSTP/	41	A06L/
N07A/	09	M06A/	RS10	42	ECIO/
OD05/	10	OD01/	RS11	43	MD02
M01A/	11	A04L/	DMAR/	44	MRST/
M02A/	12	MINT/	DMAS/	45	
A00L/	13	M03A/	SP2	46	SP7
A01L/	14	M00A/	RS13	47	M07A/
N06A/	15	RS00	RS14	48	A07L/
L00X	16	GND		49	SPARE/
L11X	17	RS04	N03A/	50	IRPY/
L04X	18	M05A/	RS12	51	N00A/
RS01	19	L10X	SEL0/	52	
L01X	20	MINTA/	N04A/	53	N01A/
WTXX/	21	RS05	N05A/	54	
L05X	22	CPH2/	PROT/	55	N02A/
FS02	23	READ	DMAW/	56	MBDY/
L02X	24	MERR/	MBSY	57	MPR0/
L06X	25	RS06	OD07/	58	OD03/
OD02/	26	OD06/	RS15	59	ID05/
RS03	27	MD07	ID01/	60	ID07/
L03X	28	MD03	ID06/	61	I03X/
A02L/	29	RS07	ID03/	62	ID02/
L07X	30	MD05		63	
I02X/	31	I01X/	GND	64	+5 Volts
ID04/	32	ID00/	GND	65	+5 Volts
CPEN/	33	L08X			

APPENDIX D

CONNECTORS J4-J7 SIGNAL LIST

A	PIN	B
GND	01	+5V (Memory)
GND	02	+5 Volts
PWRD/	03	+12V (Memory)
+12V (Memory)	04	MAU2/
	05	SPARE
CPH1	06	MAU1/
MUA0/	07	M04A/
	08	MPAR/
N07A/	09	M06A/
OD05/	10	OD01/
M01A/	11	RASP/
M02A/	12	GND
SPARE	13	M03A/
RFSL/	14	M00A/
N06A/	15	RS00*
*L00X	16	WRTS/
*L11X	17	RS04*
*L04X	18	M05A/
*RS01	19	L10X
*L01X	20	RTXX/
WTXX/	21	RS05*
*L05X	22	CPH2/
*RS02	23	READ
*L02X	24	MERR/
*L06X	25	RS06*
GND	26	OD06/
*RS03	27	MD07
*L03X	28	MD03
CAMX/	29	RS07*
*L07X	30	MD05
I02X/	31	I01X/
ID04/	32	ID00/
*CPEN/	33	L08X*

A	PIN	B
CASP/	34	MD00
MD01	35	L09X*
MD04	36	RS08*
*RS09	37	OD04/
EINT/	38	SPARE
MD08	39	GND
SPARE	40	MD06
SPARE	41	MSET/
*RS10	42	ECIO/
*RS11	43	MD02
DMAR/	44	MRST/
DMAS/	45	SPARE
SP2	46	SP7
*RS13	47	M07A/
*RS14	48	AACX/
CONT	49	SPARE/
N03A/	50	IRPY/
GND	51	N00A/
SELO/	52	
N04A/	53	N01A/
N05A/	54	
PROT/	55	N02A/
DMAW/	56	MBDY/
MBSY	57	MPRO/
OD07/	58	OD03/
*RS15	59	ID05/
ID01/	60	ID07/
ID06/	61	I03X/
ID03/	62	ID02/
-5V (Memory)	63	+12V (Memory)
GND	64	+5 Volts
GND	65	+5V (Memory)

*Valid only if Alterable Control Memory option is invoked. An ACM board may not be placed in positions J4-J7 because A51 is GND.

APPENDIX E

CONNECTOR J8 SIGNAL LIST

A	PIN	B
GND	01	+5V (Memory)
GND	02	+5 Volts
PWRD/	03	
	04	MAU2/
	05	SPARE
CPH1	06	MAU1/
MUA0/	07	M04A/
	08	MPAR/
N07A/	09	M06A/
OD05/	10	OD01/
M01A/	11	RASP/
M02A/	12	MINT/
SPARE	13	M03A/
RFSL/	14	M00A/
N06A/	15	RS00*
*L00X	16	WRTS/
*L11X	17	RS04*
*L04X	18	M05A/
*RS01	19	L10X
*L01X	20	RTXX/
WTXX/	21	RS05*
*L05X	22	CPH2/
*RS02	23	READ
*L02X	24	MERR/
*L06X	25	RS06*
OD02/	26	OD06/
*RS03	27	MD07
*L03X	28	MD03
CAMX/	29	RS07*
*L07X	30	MD05
I02X/	31	I01X/
ID04/	32	ID00/
*CPEN/	33	L08X*

A	PIN	B
CASP/	34	MD00
MD01	35	L09X*
MD04	36	RS08*
*RS09	37	OD04/
EINT/	38	SPARE
MD08	39	OD00/
SPARE	40	MD06
SPARE	41	MSET/
*RS10	42	ECIO/
*RS11	43	MD02
DMAR/	44	MRST/
DMAS/	45	SPARE
SP2	46	SP7
*RS13	47	M07A/
*RS14	48	AACX/
CONT	49	SPARE/
N03A/	50	IRPY/
*RS12	51	N00A/
SELO/	52	SELI/
N04A/	53	N01A/
N05A/	54	PRIN/
PROT/	55	N02A/
DMAW/	56	MBDY/
MBSY	57	MPRO/
OD07/	58	OD03/
*RS15	59	ID05/
ID01/	60	ID07/
ID06/	61	I03X/
ID03/	62	ID02/
MPSS/	63	MCLK/
GND	64	+5 Volts
GND	65	+5V (Memory)

*Valid only if Alterable Control Memory option is invoked.

APPENDIX F

CONNECTORS J9-J19 SIGNAL LIST

A	PIN	B	A	PIN	B
GND	01	+5 Volts		34	MD00
GND	02	+5 Volts	MD01	35	L09X*
PWRD/	03		MD04	36	RS08*
	04	MAU2/	*RS09	37	OD04/
+12 Volts	05	SPARE	EINT/	38	SPARE
CPH1	06	MAU1/	MD08	39	OD00/
MUA0/	07	M04A/	SPARE	40	MD06
-16.75 Volts	08	MPAR/	SPARE	41	
N07A/	09	M06A/	*RS10	42	ECIO/
OD05/	10	OD01/	*RS11	43	MD02
M01A/	11		DMAR/	44	MRST/
M02A/	12		DMAS/	45	SPARE
SPARE	13	M03A/			
	14	M00A/			
N06A/	15	RS00*	SP2	46	SP7
*L00X	16		*RS13	47	M07A/
			*RS14	48	
*L11X	17	RS04*	CONT	49	SPARE/
*L04X	18	M05A/	N03A/	50	IRPY/
*RS01	19	L10X*	*RS12	51	N00A/
*L01X	20	RTXX/	SEL0/	52	SEL1/
WTXX/	21	RS05*	N04A/	53	N01A/
*L05X	22	CPH2/	N05A/	54	PRIN/
*RS02	23	READ	PROT/	55	N02A/
*L02X	24		DMAW/	56	MBDY/
*L06X	25	RS06*	MBSY	57	MPR0/
OD02/	26	OD06/	OD07/	58	OD03/
*RS03	27	MD07	*RS15	59	ID05/
*L03X	28	MD03	ID01/	60	ID07/
	29	RS07*	ID06/	61	I03X/
*L07X	30	MD05	ID03/	62	ID02/
I02X/	31	I01X/		63	
ID04/	32	ID00/	GND	64	+5 Volts
*CPEN/	33	L08X*	GND	65	+5 Volts

*Valid only if Alterable Control Memory option is invoked.