1. INTRODUCTION

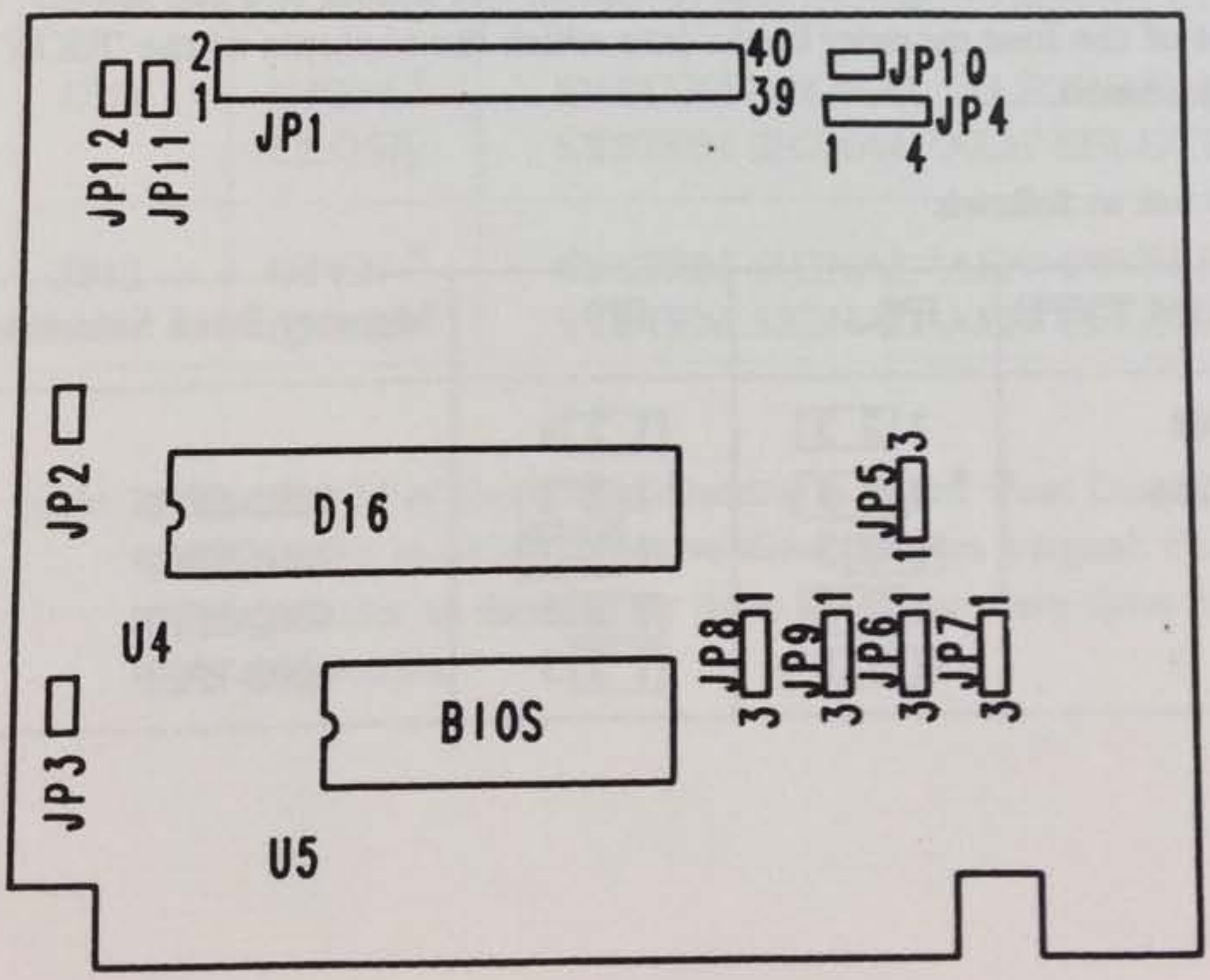
This Interface Adapter is used to install the most commonly used AT-Bus IDE (Integrated Drive Electronic) type intelligent embedded hard disk drive in XT system. With the help of on-board BIOS, the AT-Bus IDE hard disk can be used in XT system. On the adapter, the most outstanding feature is the 'D16' ASIC CHIP. A lot of gate logic is integrated inside this chip making it look more compact. Also since the gates are integrated, additional stability can be guaranteed.

1.1 Features

- Interface to AT/XT-Bus type embedded hard disk.
- Support hard disk drive with maximum 16 read/write heads and 1024 cylinders with 17 sectors per track.
- Support low level format.
- Selectable BIOS address.

1.2 Connector And Jumper Layout

Refer to figure below for location of jumpers on the adapter card when configuring your system.



2. HARDWARE INSTALLATION

This section tells you how to install the adapter card in any available XT-compatible expansion slot.

2.1 Jumper Setting

Note : Default factory settings are marked with a '*' symbol.

2.1.1 BIOS Memory Location Selection

Four memory locations are allocated for the on-board BIOS to avoid memory contention with other BIOS in different peripheral cards

JP6	JP7	BIOS address selection
1[2 3]*	1[2 3]*	C8000-C9FFF
[1 2]3	1[2 3]	CA000-CBFFF
1[2 3]	[1 2]3	CC000-CDFFF
[1 2]3	[1 2]3	CE000-CFFFF

You are provided with an option of EPROM 2764 or 27256 as the 'BIOS' simply by making changes on some jumpers. For 27256, you can specify any one of the four memory banks into which the contents of the 'BIOS' is programmed.

Details are as follows:

EPROM TYPE	JP8	JP9	Memory Bank Selection
2764 27256	1[2 3] * 1[2 3] [1 2]3 1[2 3] [1 2]3	[1 2]3 * 1[2 3] 1[2 3] [1 2]3 [1 2]3	0000-1FFF 2000-3FFF 4000-5FFF 6000-7FFF

2.1.2 Disable The Adapter From System

It is optional that the adapter can be disabled from XT system without disconnection of the hard disk and its interface physically.

JP3	Status of the adapter
CLOSE* OPEN	ENABLE DISABLE

2.1.3 Accommodation Of Different Brand Of HardDisk Drives

Some hard disk manufacturers provide extra signal connections between the system and the hard disk drives. Thus, options are provided to select these signals with help of jumper settings. If you are in doubt, please ask for advice from your local dealers.

Jumper	Setting	Description
JP10	OPEN * CLOSE	SIGNAL 'PASS DIAGNOSTICS' DISELECTED SIGNAL 'PASS DIAGNOSTICS' SELECTED
JP11	OPEN * CLOSE	SYSTEM SEGNAL 'ALE' DISELECTED SYSTEM SIGNAL 'ALE' SELECTED
JP12	OPEN * CLOSE	SYSTEM SIGNAL 'AEN' DISELECTED SYSTEM SIGNAL 'AEN' SELECTED

Note 1 : The Pin 34 of the IDE connector is called 'Pass Diagnostics (PDIAG)' in which the slave drive outputs a signal 'Pass Diagnostics' to the master drive when the slave drive has passed its diagnostics.

2.1.4 Selection Of AT-Bus Or XT-Bus Hard Disk Drives

The selection of AT-BUS or XT-BUS IDE hard disk drive can be simply done by changing the jumper setting.

JP2	XT/AT-Bus Hard Disk Drive Selection
OPEN *	AT-BUS
CLOSE	XT-BUS

2.1.5 Miscellaneous

There are two circuits built inside the chip treating system signal 'ALE' as an input for the implementation of the timing of the control signal. Use JP5 to select the most suitable one for your system. Default setting is 1-2 shorted.

2.2 LED Display

Jumper JP4 is connected to an optional LED (Light Emitting Diode) for indication of the hard disk activity. When the LED is ON, it indicates that the hard disk drive is in use.

Pin Number	Signal
1	Positive
2	Negative
3	Negative
4	Positive

3. SOFTWARE INSTALLATION

To prepare your hard disk for operation, you need to install the software that tell your computer how to use the hardware. Generally, most of the AT-Bus IDE hard disk drives have already been preformatted by their manufacturers. Thus, users are advised not to perform a low-level formatting process. After selecting the correct type of hard disk. The IDE hard disk drives are only required to do the partition of hard disk and DOS high level format. Then the AT-Bus IDE hard disk drive can be used in your XT system.

If you decide not to do the low-level format, please go to section 3.2 "Selection of Hard Disk Type"

3.1 *Low Level Format*

Warning : This part should be done only when it is necessary.

During the process of low-level format, all the previous data in the drive will be erased. If the capacity of your hard disk is greater than 65 MB, it is necessary to use DOS 4.0 or greater to format your hard disk in order to fully utilize all the space of your hard disk.

Before you start, turn on your computer and make sure that a DOS system diskette (Version 2.0 or later) containing the DEBUG program is in drive A. Then proceed to the "A>" prompt.

1) At the "A>" prompt,

   Type : DEBUG
   Press <Enter>

2) At the debug prompt "-",

   Type : G=C800:5
   Press <Enter>

If the Jumper JP6 and JP7 are not in default setting, then follow the command below at the debug prompt "-".

JP6	JP7	Command used
1 [2 3] [1 2] 3	1 [2 3] [1 2] 3	G = C 800:5
1 [2 3] [1 2] 3	1 [2 3] [1 2] 3	G = CA00:5
1 [2 3] [1 2] 3	1 [2 3] [1 2] 3	G = CC00:5
1 [2 3] [1 2] 3	1 [2 3] [1 2] 3	G = CE00:5

3) The low level format program display a table for selection (See Table A).

Type a number to select the hard disk type in which the characteristics match closely with your disk drive and press <Enter>.

4) Then it is required to confirm the selection before preformatting.

The following message will be shown:

"WARNING, ALL DATA ON HARD DISK
DRIVE C: WILL BE LOST!
Proceed with Preformat (Y/N)?"

Type in "Y" or "y" to confirm the selection, other characters to abort the preformat process.

If the answer is "Y" or "y", the preformat process starts with the message,

"Preformatting, ..."

Note : The preformat process takes a few minutes to complete.

At the end of preformat process, the following message shown as below as indication.

"Preformat completed
Please proceed FDISK and DOS FORMAT"

3.2 Selection Of Hard Disk Type

Before you start, turn on your computer and make sure that a DOS system diskette (Version 2.0 or later) containing the DEBUG program is in drive A. Then proceed to the "A>" prompt.

1) At the "A>" prompt,

Type : DEBUG
Press <Enter>

2) At the debug prompt "-",

Type : G = C800:8
Press <Enter>

Note : If the Jumper JP6 and JP7 are not in default setting, then follow the command below at the debug prompt "-".

JP6	JP7	Command used
1 [2 3] [1 2] 3	1 [2 3] [1 2] 3	G = C 800:8
1 [2 3] [1 2] 3	1 [2 3] [1 2] 3	G = CA00:8
1 [2 3] [1 2] 3	1 [2 3] [1 2] 3	G = CC00:8
1 [2 3] [1 2] 3	1 [2 3] [1 2] 3	G = CE00:8

3) The low level format program display a table for selection (See Table A).

Type a number to select the hard disk type and press <Enter>.

TABLE A : TABLE OF HARD DISK DRIVE

Selection Of Hard Disk Drive From Table Below:

TYPE	CYL	HEAD	CAPACITY	TYPE	CYL	HEAD	CAPACITY
1	306	4	10 MB	21	733	7	42 MB
2	615	4	20 MB	22	733	5	30 MB
3	615	6	30 MB	23	306	4	10 MB
4	940	8	62 MB	24	977	5	40 MB
5	940	6	46 MB	25	1024	9	76 MB
6	615	4	20 MB	26	1224	7	71 MB
7	462	8	30 MB	27	1224	11	111 MB
8	733	5	30 MB	28	1224	15	152 MB
9	900	15	112MB	29	1024	8	68 MB
10	820	3	20 MB	30	1024	11	93 MB
11	855	5	35 MB	31	918	11	83 MB
12	855	7	49 MB	32	925	9	69 MB
13	306	8	20 MB	33	1024	10	85 MB
14	733	7	42 MB	34	1024	12	102 MB
15	RESERVED			35	1024	13	110 MB
16	612	4	20 MB	36	1024	14	119 MB
17	977	5	40 MB	37	1024	2	17 MB
18	977	7	56 MB	38	1024	16	136 MB
19	1024	7	59 MB	39	918	15	114 MB
20	733	5	30 MB	40	820	6	40 MB

TYPE	CYL	HEAD	CAPACITY
41	1024	5	42 MB
42	981	5	40 MB
43	981	10	81 MB
44	615	8	40 MB
45	963	10	80 MB
46	753	16	100 MB

Enter Hard Disk TYPE Number (1 - 46) :

MODEL NAME : D16X

PART NO : IDE-00A-00J