

USB Interface
Double Speed Floppy Disk Unit

2x Slim-FBU

Model YD-8U12

Product Specification



Product Revision	Date	Description
-	Dec. 25, 2001	Preliminary
A	Feb. 1, 2002	Change current spec. and out line dimension. Correct error.
B	Apr. 2, 2002	Added to support Windows Mac OS 9.2 and 9.2.1.
C	Dec. 4, 2003	Mechanical Specification Size and out line dimension. Correct error.

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*Nuclear control, airplane flight control, air traffic control, mass transportation operation control, life support, weapon launch control, etc.

This product specification is subject to change without notice.

Index

1. INTRODUCTION1

2. CONFIGURATION2

 2.1 BLOCK DIAGRAM2

 2.2 DRIVER SOFTWARE3

3. PRODUCTS SPECIFICATIONS4

 3.1 SYSTEM CONTROL BLOCK4

 3.2 FDD SPECIFICATION.....5

 3.3 CABLE SPECIFICATION5

 3.4 APPEARANCE.....6

 3.4.1 Case Specification6

 3.4.2 Mechanical Specification6

 3.4.4 Drawing of out line dimension.....6

4. SYSTEM REQUIREMENT7

 4.1 POWER REQUIREMENT7

 4.2 ENVIRONMENT REQUIREMENT.....7

1. Introduction

2x Slim-FBU is USB I/F supported double speed FDD with a built-in USB Controller Circuit in the double speed FDD Circuit Board. It is miniaturized, lightweight, and in particular thinnest (Thickness 17 mm) FDD product which is easier to carry about.

1) Double Speed data read/write

2x Slim-FBU has 500/1000 kbps data transfer rate. The read/write performance is double speed compare with standard USB-FDD. It is faster than Embedded FDD in PC.

2x Slim-FBU will be able to operate with the same system environment which standard Slim-FBU has been operated.

2) Standard USB Interface

2x Slim-FBU has the following standard USB interface and can be connected to a host and a hub compatible with USB.

- Include USB compatible protocol
- Response to standard USB operations such as configuration and reset

Standard capability descriptive information

3) Hot Insertion Supported

2x Slim-FBU allows “hot insertion” on computers with drivers, which support USB. That is, you can plug in and use 2x Slim-FBU, or remove 2x Slim-FBU from your computer, without rebooting or cycling the power of your computer.

4) Low Power Consumption

2x Slim-FBU is designed for very low power consumption. The power consumption is 1.35W operating and 2.5 mW suspended.

5) Handles 720 kB, 1.2 MB, and 1.44 MB Media Formats

For maximum data interchangeability, the 2x Slim-FBU drive meets all of the requirements of 720 kB, 1.2 MB and 1.44 MB recording formats. 2x Slim-FBU switches between 720 kB, 1.2 MB, and 1.44 MB media without any user intervention, rebooting, or power down of the unit.

6) Support Windows and Mac OS

2x Slim-FBU is supported by the built-in driver of Windows XP, 2000, ME, and Mac OS 8.6 or later (9.0, 9.0.4, 9.1, 9.2, 9.2.1, 10.1).

Y-E DATA prepare Slim-FBU driver for Windows 98, Windows CE2.11 (H/PC Pro3.0) AND 3.0.

Slim-FBU driver for Windows CE2.11 supported processor type of ARM, MIPS and SH4.

(NOTE)

- The host computer system cannot normally be booted from the 2x Slim-FBU. If it is requested, changing the host computer's BIOS can make it possible.
- 2x Slim-FBU does not have its own power supply – its power is supplied via the USB cable.

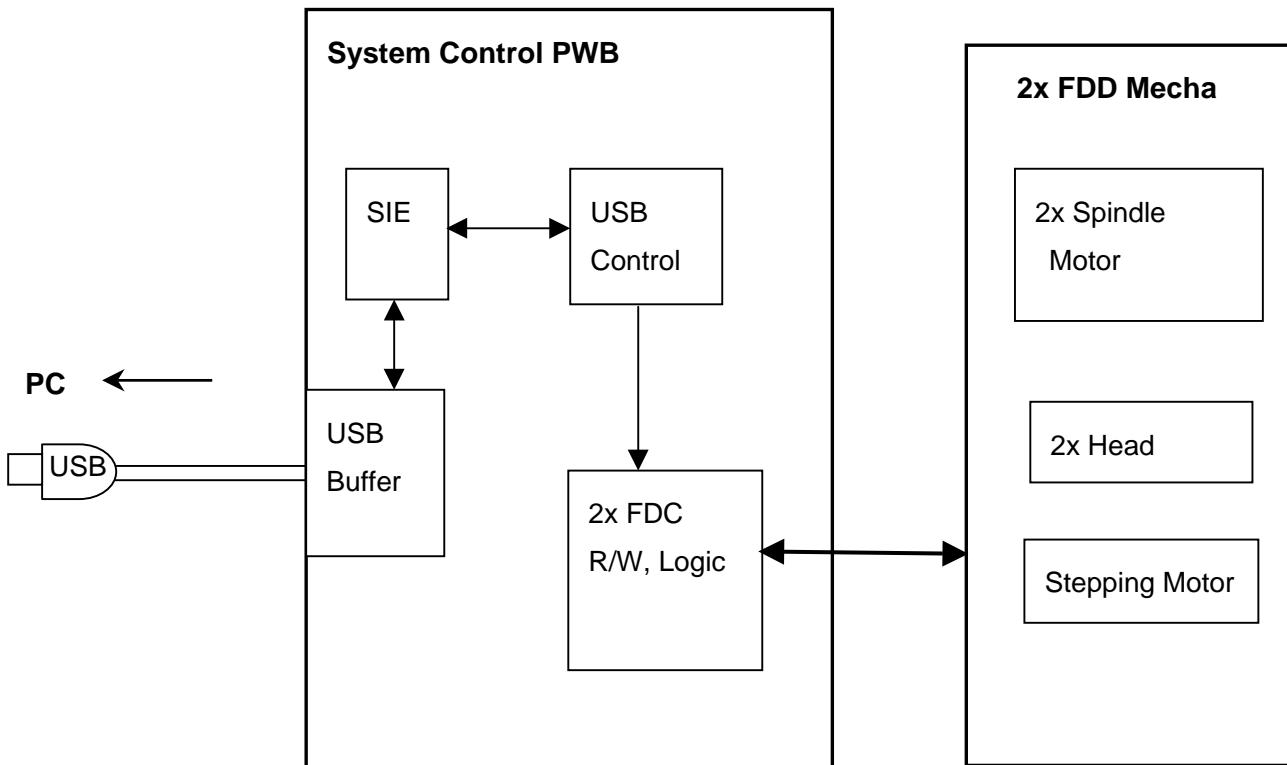
2. Configuration

2x Slim-FBU has the following components.

Item	Quantity
2x Slim-FBU	1
Driver Disk for Host PC	1

2.1 Block Diagram

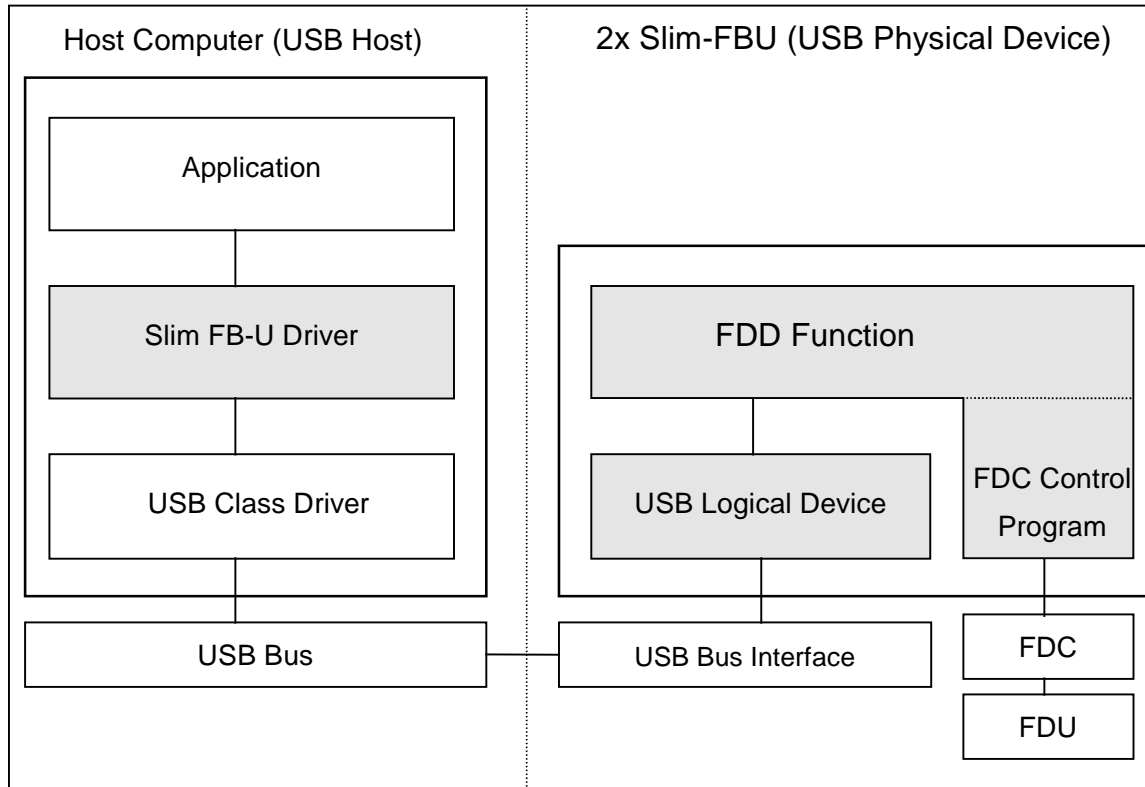
The following is the internal block diagram of the 2x Slim-FBU



2.2 Driver Software

Host computer exchanges data with the 2x Slim-FBU via the USB bus interface.

On 2x Slim-FBU it has the program layers that communicates to the same host layers and the floppy disk control program. All of the device program runs under Microprocessor in 2x Slim-FBU.



Note: is indicates dedicated software for 2x Slim-FBU.

Slim-FBU Driver : This is Client software of USB Host, and this driver issue I/O request of Read/Write/Format/others to 2x Slim-FBU.

USB Logical Device : This is USB logical device in USB Physical Device and it has functions of Control Endpoint, Bulk Input Endpoint, Bulk Output Endpoint and Interrupt Endpoint.

FDD Function : This is Function in USB Physical Device. It interprets the commands from Slim-FBU Driver and controls FDC Control Program.

FDC Control Program : It locates in Function in USB Physical Device, and it controls FDC and FDD under instructions of FDD Function.

3. Products Specifications

3.1 System Control Block

System control block has MICON, USB and FDC.

1) MICON

Architecture	16 bits Micro-controller
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2) USB

Compatibility	USB spec Rev.1.1
Transfer Rate	FULL SPEED (12 Mbps)
Signal Level	>200 mV differential
Communication	Half duplex

3) FDC

Architecture	μPD72065B FDC compatible
Data Separator	Digital PLL

3.2 FDD Specification

Media		2HD				2DD	
Unformatted Capacity		2.0 MB		1.6 MB		1.0 MB	
Formatted Capacity	Sector size	Capacity	Sectors /Track	Capacity	Sectors /Track	Capacity	Sectors /Track
	512 B	1440 kB	18	1200 kB	15	640 kB	8
	512 B	-	-	-	-	720 kB	9
	1024 B	-	-	1280 kB	8	-	-
Tracks		80		80		80	
Heads		2		2		2	
Encoding Method		MFM		MFM		MFM	
Revolution per minute (min ⁻¹)		600		720		600	
Transfer Rate (kbit/s)		1,000		1,000		500	
MTBF		30,000 hrs.(duty of motor on: less than 5% of power on)					
Data Reliability	Hard Error Rate	Less than 1 in 10 ¹² bits					
	Soft Error Rate	Less than 1 in 10 ⁹ bits					
	Seek Error Rate	Less than 1 in 10 ⁶ bits					

3.3 Cable Specification

Jacket Material	PVC
Color	silver
Size of Cable	28 AWG
Mode	28 AWG one pair

3.4 Appearance

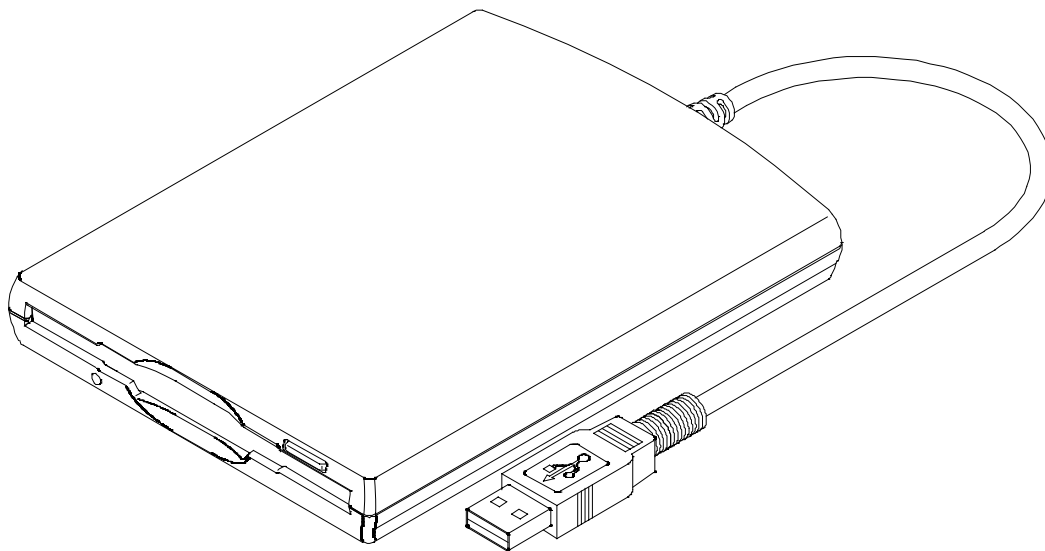
3.4.1 Case Specification

Color	Top side: Titanium color / Bottom side: Titanium color
Case Material	ABS

3.4.2 Mechanical Specification

Size	((102.5 ± 1 mm(W) X 140.0 ± 1 mm(D) X 17.0 ± 1 mm(H)))
Weight	285 g (TYP)

3.4.4 Drawing of out line dimension



4. System Requirement

4.1 Power Requirement

Power Voltage (Vcc)	DC 4.75V to 5.25V
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Power Supply Current		TYP	MAX
	Suspend	---	500 uA
Stand By	80 mA	130 mA	
Read	270 mA	350 mA	
Write	270 mA	350 mA	
Motor Start	450 mA	500 mA	
Seek	440 mA	500 mA	

Note: Test Condition

Vcc=DC5.0 V, DISK: the general disk

4.2 Environment Requirement

Environment		Operating	Non-Operating
	Temperature	5 ~ 40 °C	-40 ~ 60 °C
Humidity	30~ 80 %RH	No dewing	
Max wet bulb	29 °C	-----	
Vibration	9.8m/s ² (10~200 Hz)	19.6m/s ² (10 ~ 500 Hz)	
Sweep Time : 5.6minute Test Time : 10minute(1direction) Direction of Sweep:‘XYY’	4.9m/s ² (200 ~ 500 Hz)		
Shock	49 m/s ² (11ms Half Sine)	980m/s ² (11ms Half Sine)	
Direction of Shock:‘XYY’ 20 times each direction			
Electrostatic Discharge	IEC pub.61000-4-2 Level 4 compliant		

Regulations	UL, cUL, TÜV,CE, FCC-classB, VCCI-classB
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