

Embedded USB Flash Disk

UDU_{xxx}-XX

Product Specification

Ver 1.3

Preliminary

Documentation History

Version	Description	Date	Written by
0.9	Draft	Nov. 2006	Sky lee
0.92	Draft	Nov. 2006	Sky lee
1.0	First issue	Dec. 2006	Sky lee
1.1	Modify Product Name	Dec. 2006	Greg Liu
1.2 ; 1.3	Added Dimension	Dec. 2006	Greg Liu

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Preliminary

Features

- **USB Interface**
 - High-speed USB 2.0 interface; backward compatible with USB 1.1
 - Integrated USB 2.0 Transceiver Macrocell Interface (UTMI) and Serial Interface Engine (SIE)
- **Flash Interface**
 - Dual-channel & interleave mode support to achieve best performance
 - Integrated ECC circuits for 4-byte error correction
- **8032 8-bit Micro-controller with enhanced feature**
 - One clock per instruction cycle
 - Embedded RAM and ROM
- **Highest data transfer rate, supports dual channel interleave access**
- **Write-Protect switch for security**
- **Can be used for storage on the following operating systems:**
 - Windows 98/ME/2000/XP, Mac9.x above and Linux kernel 2.4 above are compatible
- **Support for major embedded OSs, including Windows XP Embedded and Linux**

General Description

PRETEC Embedded USB Flash Disk is the ideal data storage device in any USB-capable system orithms.

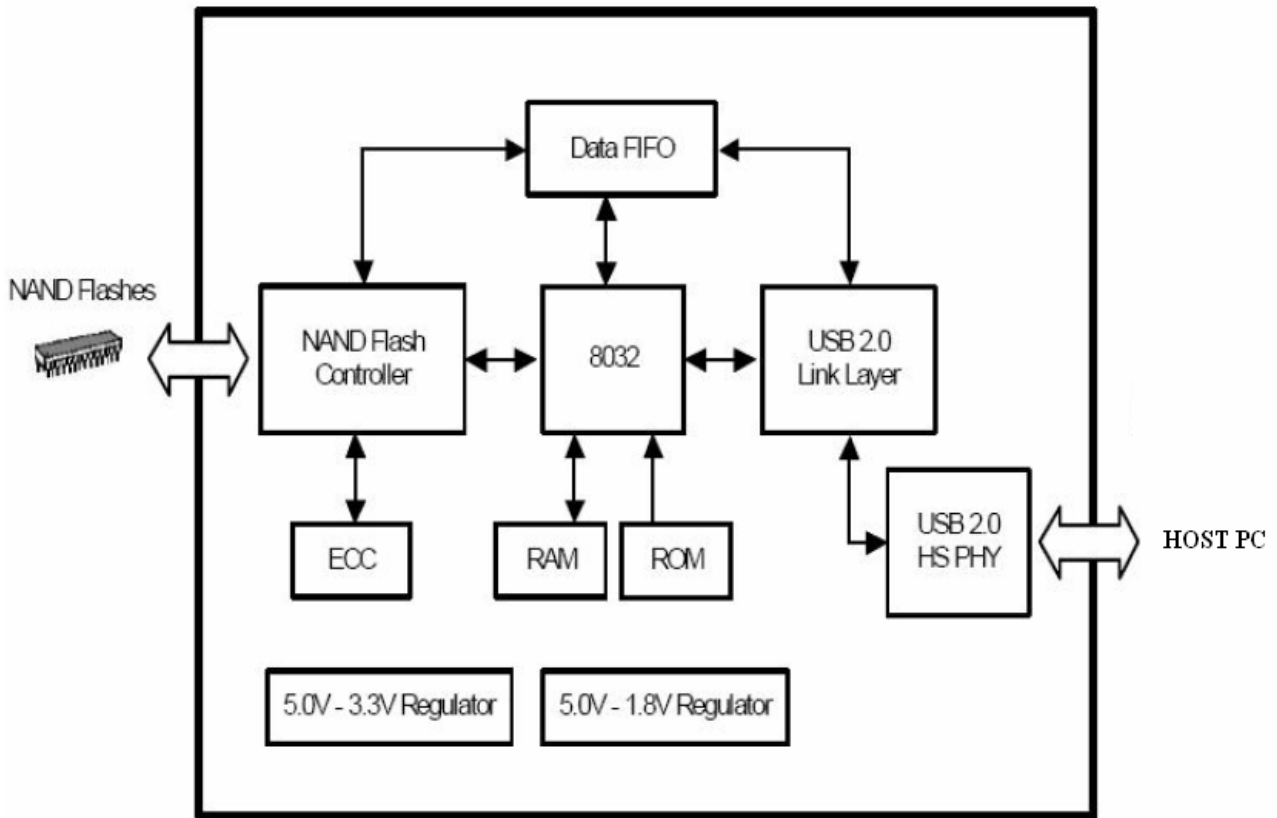
PRETEC Embedded USB Flash Disk offers the speed and ease of the USB interface. PRETEC Embedded USB Flash Disk can work with any operating system that supports USB Mass Storage Class devices, such as Windows XP Embedded, Windows CE, Linux, and others.

PRETEC Embedded USB Flash Disk provides data protection in hardware

PRETEC Embedded USB Flash Disk is based on Single Level Cell (SLC) NAND flash technology. This technology is superior in its data storage characteristics, featuring the industry's highest performance. Additionally, NAND flash technology is known for its high density and small die size, with the related cost and real estate benefits..

PRETEC Embedded USB Flash Disk is available in capacities ranging from 256MB to 8GB with a fast and simple upgrade path. It fits easily into any platform with an embedded USB connector, and can be secured firmly into place for enhanced ruggedness.

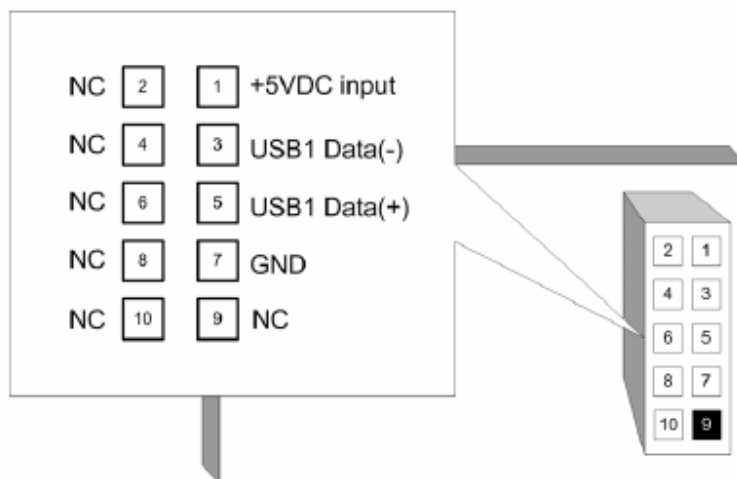
Block Diagram



Pin Configuration

Pin	Signal
1	+5VDC
3	USB1 Data(-)
5	USB1 Data(+)
7	GND
9	NC

Pin	Signal
2	NC
4	NC
6	NC
8	NC
10	NC

Pin Location

Flash Drive Controller 10-pin USB port (pitch = 2.0mm & pitch=2.54mm)

Specifications

Environment		
Capacity		256MB 512MB 1GB 2GB 4GB 8GB
Temperature	Operating	0 °C to 70 °C
	Non-Operating	-40 °C to 85 °C
System Performance	Dual -Channel Read	30 MB/sec (Max.)
	Dual -Channel Write	18 MB/sec (Max.)
Power Requirement	Voltage	DC 5V ± 10%
Data Retention		10 years
Connector Durability		10,000 times
Reliability		1,000,000 program/erase cycles

DC Characteristics

Symbol	Parameter	Min	Max	Unit
VIH_TTL	TTL Input High Voltage	2	Vcc3+0.3	V
VIL_TTL	TTL Input Low Voltage	-0.3	0.8	V
VOH_TTL	TTL Output High Voltage	0.9Vcc3		V
VOL_TTL	TTL Output Low Voltage		0.45	V
IOH_TTL	TTL Output High Current	-4		mA
IOL_TTL	TTL Output Low Current		4	mA
VIH_USB	USB Input High Voltage for Low-/full-speed	2.0		V
VIL_USB	USB Input Low Voltage for Low-/full-speed		0.8	V
VI_USB_DIFF	Differential Input Sensitivity for Low-/full-speed	TBD		V
VI_USB_CM	Differential Common Mode Input Range for Low-/full-speed	0.8	2.5	V
VI_USB_HSSQ	USB High-speed squelch Input detection threshold	0.1	0.15	V
VI_USB_HSDSC	USB High-speed disconnect Input detection threshold	0.525	0.625	V
VI_USB_HSCM	USB High-speed Signaling Common Mode Range	-0.05	0.5	V
VOH_USB	USB Output High Voltage for Low-/full-speed	2.8	3.6	V
VOL_USB	USB Output Low Voltage for Low-/full-speed	0	0.3	V
VOH_USB_HS	USB Output High Voltage for High-speed	0.36	0.44	V
VOL_USB_HS	USB Output Low Voltage for High-speed	-0.01	0.01	V
IOH_USB	USB Output High Current for Low-/full-speed	-10		mA
IOL_USB	USB Output Low Current for Low-/full-speed		10	mA
IOH_USB_HS	USB Output High Current for High-speed	-40		mA
IOL_USB_HS	USB Output Low Current for High-speed		40	mA

AC Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit
TP _{ILH}	Input Rising Delay	0.61 (0.8pF)	0.72 (2.4pF)	0.92 (4.8pF)	ns
TP _{IHL}	Input falling Delay	0.88 (0.8pF)	1.03 (2.4pF)	1.24 (4.8pF)	ns
TP _{OLH}	Output Rising Delay	2.40 (10pF)	3.42 (30pF)	4.88 (60pF)	ns
TP _{OHL}	Output falling Delay	2.61 (10pF)	3.62 (30pF)	5.03 (60pF)	ns
TR	Output Rising Time	2.26 (10pF)	4.45 (30pF)	7.83 (60pF)	ns
TF	Output falling Time	1.90 (10pF)	3.63 (30pF)	6.23 (60pF)	ns

Part Number Definition

X₁X₂X₃X₄X₅X₆-X₇X₈

Code	Definition	symbol	Description
X ₁ X ₂	Model	UD	U : USB ; D : Flash Disk
X ₃	Solution	U	Embedded USB Flash Disk
X ₄ X ₅ X ₆	Capacity	256	256MB
		512	512MB
		01G	1GB
		02G	2GB
		04G	4GB
		08G	8GB
X ₇	Orientation	HR	H : Horizontal ; R : Right Side
		HL	H : Horizontal ; L : Left Side
X ₈	Connector	1	2.54 Pitch
		2	2.0 Pitch

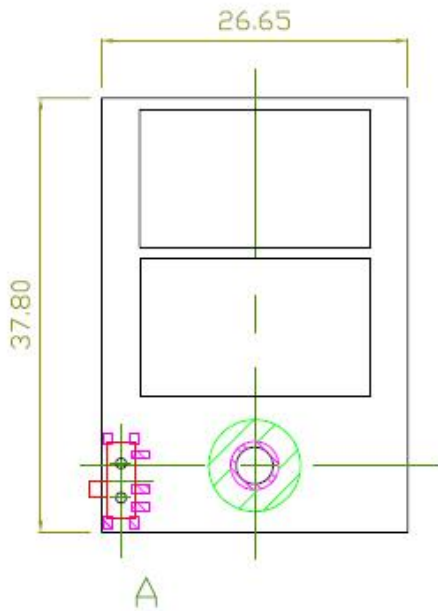
C-ONE

Embedded USB Flash Disk

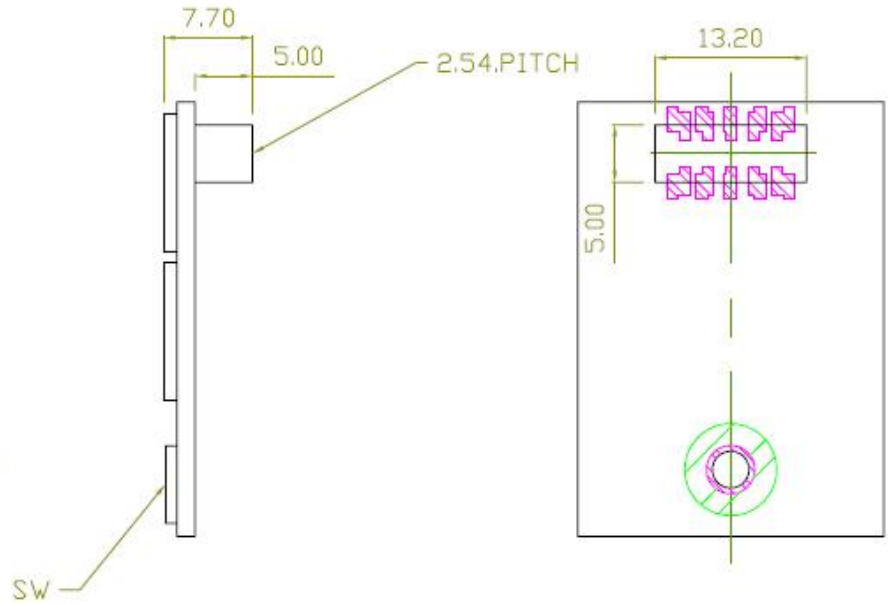
Dimension

● 2.54 Pitch Connector

Top View

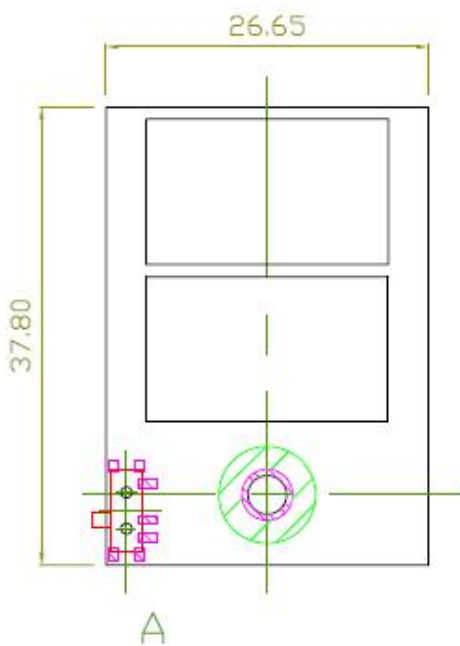


Bottom View

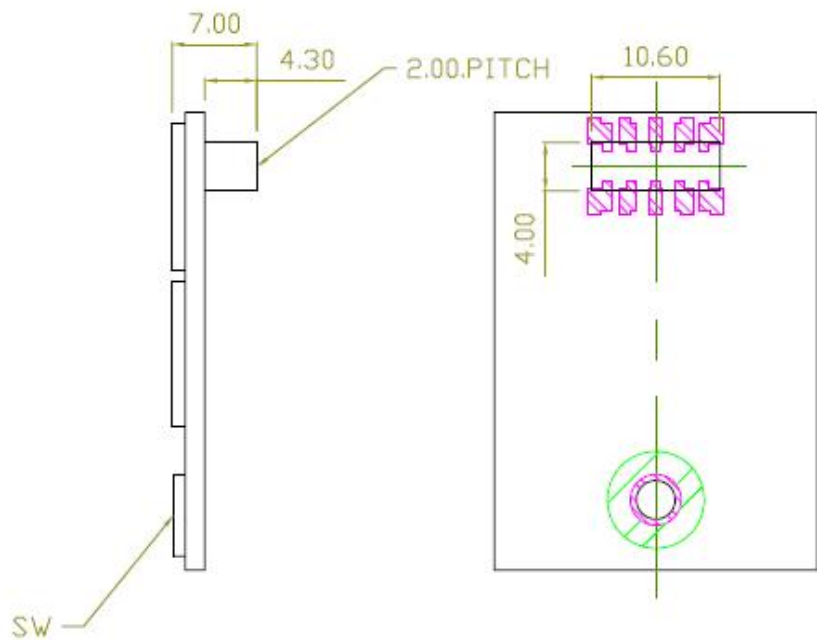


● 2.0 Pitch Connector

Top View



Bottom View



Notes : (Write Protect)

