ATP Industrial Grade Wide-Temperature Z-U130 eUSB SSD Specification

Revision 2.5

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Revision History

Date	Version	Changes compared to previous issue
June 25th, 2008	1.0	- Base version
Dec. 9th, 2008	1.1	- Add 2.00mm pitch low profile products
Feb. 18th, 2009	1.2	- Change product image and mechanicals
Sept. 21st, 2009	1.3	- Modify pin numbering orientation in Pin Assignment
Dec. 24th, 2009	1.4	- Update the Low Profile Mechanical and Dimension
Apr. 7th, 2010	1.5	- Add circle type mounting hole eUSB SSD product - Update the performance
July 28th, 2010	1.6	- Add 16GB SLC
Feb. 25th, 2011	1.7	- Added New External P/N
Aug. 29th, 2011	2.0	- Added Power Protector feature and New BOM's P/N table - Updated product photos and performance data - Removed 512MB & 1GB version from 2.00mm & 2.54mm eUSB standard product lines.
Sept. 13th, 2011	2.1	- Updated Physical Dimension Specification & Mechanical and Dimension drawings.
May 11th, 2012	2.2	- Updated product photo
Aug. 8th, 2012	2.3	- Added Static Data Refresh feature
Aug. 27th, 2012	2.4	- Added 512MB and 1GB SLC versions
Sept. 5th, 2012	2.5	- Removed Static Data Refresh feature

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Introduction

The ATP Industrial Grade Z-U130 eUSB SSD is a solid state drive based on high performance NAND flash memory. This 10-pin embedded Disk-On-Module product utilizes the standard USB 2.0 interface which provides a true plug & play feature. This low power and compact size product is suitable for embedded storage applications. ATP Industrial Grade Z-U130 eUSB SSD offers an extended operating temperature range of -40°C to 85°C, provides outstanding performance and proven reliability for products operating outside the standard temperature range.

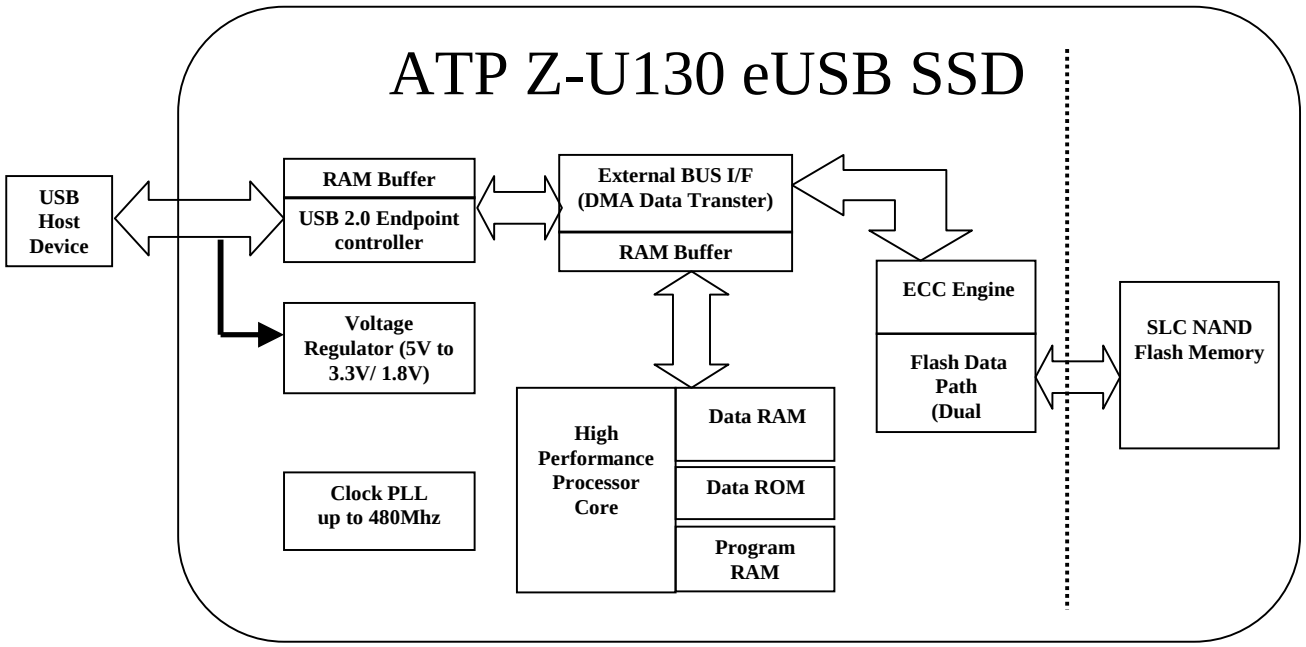
The ATP Industrial Grade Z-U130 eUSB SSD is designed for demanding industrial applications, such as military/aerospace, automotive, marine navigation, embedded, communication equipment or networking, medical equipment, and manufacturing, where mission-critical data requires the highest level of reliability, durability, and data integrity.

Main Features

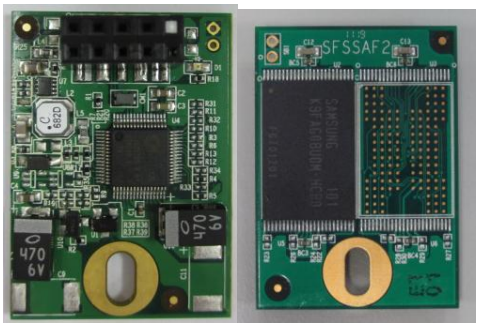
- Complete USB specification ver.2.0 and ver. 1.1 compatibility,
- High Speed (480 Mbits/sec), Full Speed (12 Mbits/sec) and Low Speed (1.5 Mbits/sec) transfer support.
- Operating temperature: -40°C to 85°C
- True “Plug and play” connection, support hot swap
- Top level Single Level Cell (SLC) NAND flash memory
- Built in 8bit/512Byte ECC engine provides automatic error correction
- Advanced NAND management technology, static and dynamic wear-Leveling algorithm
- High reliability, MTBF(Mean Time Between Failures): 5,000,000 hours
- Enhanced bad block management algorithm
- Power Protector, built-in power-down data protection
- Shock & vibration resistance
- RoHS compliant
- CE, FCC certification

Block Diagram

ATP Industrial Grade Z-U130 eUSB SSD consists of below functional blocks. The advanced architecture is optimized to provide highest data reliability and transfer performance.



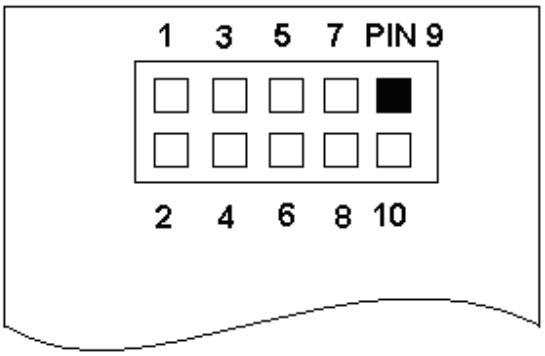
Product Images



Capacities

ATP Industrial Grade Z-U130 eUSB SSD P/N				CAPACITY
Standard profile (2.54mm pin pitch)	External P/N	Low profile (2.00mm pin pitch)	External P/N	
AF512SSGH	AF512SSGH-AABXP	AF512SSGI	AF512SSGI-AABXP	512MB
AF1GSSGH	AF1GSSGH-AABXP	AF1GSSGI	AF1GSSGI-AABXP	1GB
AF2GSSGH	AF2GSSGH-AABXP	AF2GSSGI	AF2GSSGI-AABXP	2GB
AF4GSSGH	AF4GSSGH-AABXP	AF4GSSGI	AF4GSSGI-AABXP	4GB
AF8GSSGH	AF8GSSGH-AABXP	AF8GSSGI	AF8GSSGI-AABXP	8GB
AF16GSSGH	AF16GSSGH-AAAXP	AF16GSSGI	AF16GSSGI-AAAXP	16GB

Pin Assignment



PIN	SIGNAL	TYPE	PIN	SIGNAL	TYPE
1	VCC	Power	2	NC	-
3	USBD-	I/O	4	NC	-
5	USBD+	I/O	6	NC	-
7	GND	Power	8	NC	-
9	NC	-	10	NC	-

Signal Description

SIGNAL NAME	TYPE	DESCRIPTION
VCC	Power	Bus Power Supply
USBD-	I/O	USB Data Negative Pin
USBD+	I/O	USB Data Positive Pin
GND	Power	Ground
NC	-	No Connection

Electrical Specifications

Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{CC}	Recommend Supply Voltage	4.5	5.0	5.5	V
	Peak Voltage on any Pin	-0.3		5.5	V
I_{CC}	Operating Current (read & write)		100		mA
I_{SB}	Standby Current		50		mA

Environment Specifications

Parameter		Value
Temperature	Operating	-40°C to 85°C
	Non-Operating	-40°C to 85°C
Humidity	Operating	8% to 95%, noncondensing
	Non-Operating	8% to 95%, noncondensing
Vibration	Operating	15G peak-to-peak Max.
	Non-Operating	15G peak-to-peak Max.
Shock	Operating	2,000G Max.
	Non-Operating	2,000G Max.
Altitude	Operating	80,000 feet Max.
	Non-Operating	80,000 feet Max.

Reliability

- Data Retention: 10 years without power
- MTBF @ 25 °C: > 5,000,000 hours (Telcordia/Bellcore SR-332)
- Dynamic and Static wear leveling algorithm

Performance

Parameter	Value
Data Transfer Rate	Sequential read up to 21MByte/s
	Sequential write up to 18MByte/s

Certifications

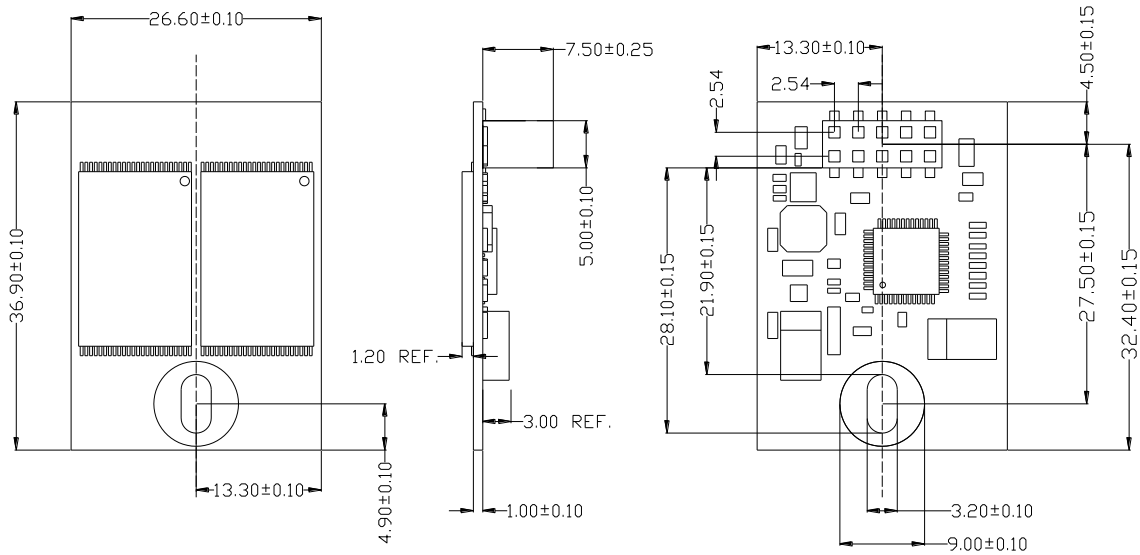
- RoHS compliant
- CE certification
- FCC certification

Physical Dimension Specifications

Parameter	Value	
	Standard profile (2.54mm pin pitch)	Low profile (2.00mm pin pitch)
Length	36.90+/- 0.10mm	36.90+/- 0.10mm
Width	26.60+/- 0.10mm	26.60+/- 0.10mm
Thickness	9.70+/- 0.25mm	5.90+/- 0.25mm

Mechanical Form Factor (Units in mm)

Standard Profile Mechanicals (2.54mm pin pitch connector):



Low Profile Mechanicals (2.00mm pin pitch connector):