Advance Information

Industrial Grade PCIe-Chip Product Brief

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1.Cactus Technologies® Industrial Grade PCIe-Chip Product Highlights

Features:

- Solid state design with no moving parts
- Native PCIe mode operation
- DRAM-less, supports HBM
- Available in capacities of 128/256/512 GB
- Compliant with PCIe Gen3 8Gbits/s x 2 lanes
- Compliant with NVMe v1.4 specifications
- Supports NVMe defined SMART attributes
- Advanced LDPC ECC
- -40 °C to +85 °C operating temperature
- Operating voltage of 3.3V±5%

Overview:

Cactus Technologies® Industrial Grade PCI-Chip is a capacity solid-state flash memory product that complies with PCIe Gen3 and NVMe v1.4 standards. This product comes in a castellated PCB module and is designed to be directly soldered onto customer's system board in embedded applications.

Cactus Technologies® Industrial Grade PCIe-Chip product is built with high quality Kioxia (formerly Toshiba) 3D NAND flash and includes an on-card intelligent controller that manages interface protocols, data storage and retrieval as well as ECC, defect handling and diagnostics, power management, and clock control.

1.1. Supported Standards

Cactus Technologies® Industrial Grade PCIe-Chip products are fully electrically compatible with the following specifications:

- PCIe Gen3 Specification published by PCI-SIG
- NVMe v1.4 Specification published by NVM Express Organization

1.2. Product Specifications

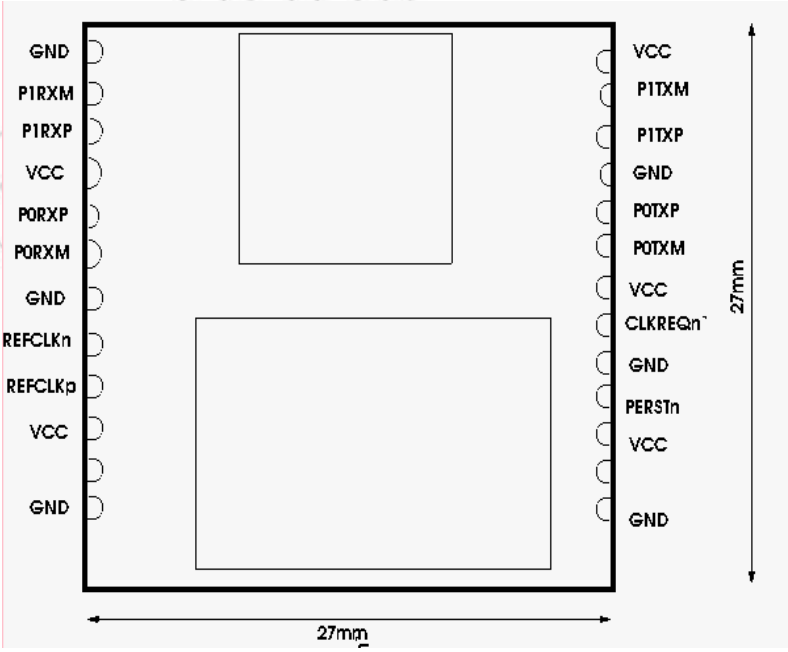
The following are preliminary specifications for Cactus Technologies® Industrial Grade PCIe-Chip products.

1.2.1. Interface

PCI Express: Generation 3, 8Gbits/s x 2 lanes; backwards compatible to Generation 1, 2.5Gbits/s; Generation 2, 5.0Gbits/s

1.2.2. Dimensions

Cactus Technologies® Industrial Grade PCIe-Chip comes in a castellated PCB module that can be soldered onto customer's system board. The dimensions of this module is as shown below:



1.2.3. Performance

Sequential Write: Up to 1200MB/s

Sequential Read: Up to 1800MB/s

Random 4K Read IOPS: Up to 90K

Random 4K Write IOPS: Up to 75K

1.2.4. Power Supply Requirements

Input Voltage: 3.3V ±5%

Power Consumption: TBD

1.2.5. Environmental Specifications

Operating Temperature: -40 to +85 °C

Storage Temperature: -55 to 100 °C

Humidity: 5 to 95% (non-condensing)

Shock: 3,000 G MIL-STD-883G Method 2002.3 condition C

Vibration: 20 G MIL-STD-883G Method 2005.2 condition A

Altitude: sea level to 100,000 feet

1.2.6. Reliability

Endurance: Estimated TBW (based on flash vendor typical NAND flash P/E cycle ratings and large block sequential writes at room temperature only; does not take into account data retention requirement):

Capacity	TBW
128GB	384
256GB	768
512GB	1536