



Archon CFexpress

(CFexpress, TLC, Commercial)

Product Datasheet

PCIe Gen 3 x 2

Commercial Temperature Grade -10°C ~ 70°C

Revision History

Revision	Description	Date
001	First Released	Dec 9 th , 2021
002	Add 2TB	August, 2022

Archon CFexpress

Product Specification

- Capacity
 - 1TB
 - 2TB
- Components
 - Controller: Marvell 88SS1321
 - Flash: 3D TLC
 - DRAM: LPDDR3 / DDR4
- Compliance
 - PCIe Gen 3 x 2 (Support Gen 4 x 2)
- Performance (up to) *
 - Burst Read: 1,700 MB/s
 - Burst Write: 1,600 MB/s
- Reliability
 - Advanced LDPC error correction
 - Global static and dynamic wear leveling
 - UBER: 1 sector per 10^{17} bits read
 - MTBF: 2.0 Million Hours
- Endurance TBW (up to)
 - up to 600TB (with 1TB)
 - up to 1200TB (with 2TB)
- Data Retention
 - JESD47 Compliant
- Mechanical Form Factor
 - 29.6 mm x 38.5 mm x 3.8 mm
- Environment
 - Operating temperature: $-10^{\circ}\text{C} \sim 70^{\circ}\text{C}$
 - Storage temperature: $-40^{\circ}\text{C} \sim 85^{\circ}\text{C}$
- Shock & Vibration
 - Operating:
 - 50G (11ms duration, half sine wave)
 - Non-Operating:
 - 1500G (0.5ms duration, half sine wave)
 - Vibration: 10G (Peak, 10~2000Hz)
- Warranty
 - 5 years

Specifications subject to change without notice.

*(1) Actual performance may vary based on hardware, software, and overall system configuration.

(2) Sequential performance is measured with 128KB transfer size, QD 32 and 4KB align with IO Meter.

(3) Random performance is sustained performance measured with 4K/8K transfer size, QD 32 and 4KB align with IO Meter.

(4) Performance Test Platform: CPU - Intel Core i7 4770K, Mother Board - ASUS Z87-DELUXE, Chipset - Intel Z87 Express,
OS - Windows 8.1 Pro x64

1. Ordering Information

The following Tables list the part No. for Exascend Archon series CFexpress

Table 1 Archon series CFexpress product list

Part Number	Capacity	Flash Type	Form Factor
EXPC3E001TBI	1TB **	3D TLC	CFexpress
EXPC3E002TBI	2TB **	3D TLC	CFexpress

*1GB=1,000,000,000 Bytes

**1TB=1,024GB

2. Product Specifications

2.1 Capacity

Table 2 User Addressable Sectors

Archon CFexpress Series	Unformatted Capacity (Total User Addressable Sectors in LBA mode)
1TB	2,000,409,264
2TB	4,000,818,528

Notes:

- (1) LBA count shown represents total user storage capacity and will remain the same throughout the life of the drive.
- (2) The total usable capacity of the SSD may be less than the total physical capacity because a small portion of the capacity is used for NAND flash management and maintenance purposes.

2.2 Performance

Table 3 Drive Performance – Archon CFexpress

Parameter	Capacity	Unit
	1TB/2TB	
Burst Read	1700	MB/s
Burst Write	1600	MB/s

Specifications subject to change without notice.

Notes:

- (1) Drive is connected as secondary
- (2) Actual performance may vary based on hardware, software, and overall system configuration.
- (3) Sequential performance is measured with 128KB transfer size, QD 32 and 4KB align with IO Meter.
- (4) Random performance is sustained performance measured with 4K/8K transfer size, QD 32 and 4KB align with IO Meter.
- (5) Test Platform: CPU - Intel Core i7 4770K, Mother Board - ASUS Z87-DELUXE, Chipset - Intel Z87 Express, OS - Windows 8.1 Pro x64

3. Environment Specifications

Table 4 Environmental Specification Table

Parameter	Value
Operating Temperature	-10° ~ 70° C
Storage Temperature	-40° ~ 85° C
Power Supply Voltage Range	3.3V ± 5%
Humidity (non-condensing)	5%~95% (Operating)
Vibration	10G(Peak,10~2000Hz)
Shock (Operating)	50G, (11ms duration, half sine wave)
Shock (Non-Operating)	1500G, (0.5ms duration, half sine wave)

4. Physical Dimension Diagram

CFexpress Board (Type-B)

Figure 1: Physical Dimension Diagram for CFexpress board (Type-B)

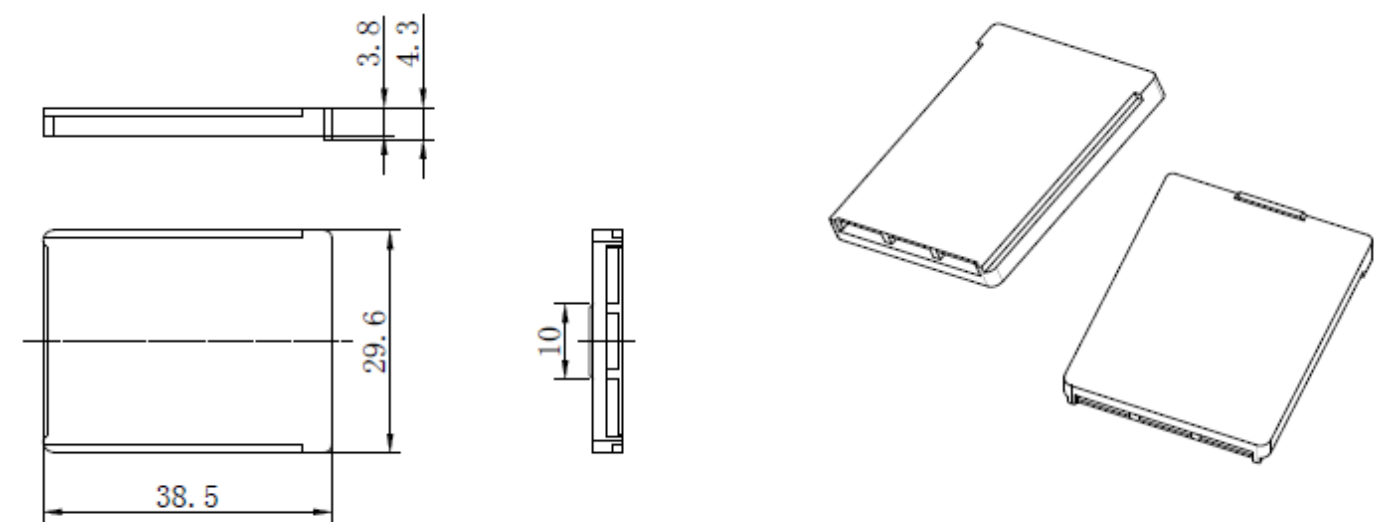


Table 5 Physical Dimension for CFexpress card (Type-B)

Physical Dimensions	Value	Unit
Length	29.6	mm
Width	38.5	mm
Thickness	3.8	mm

5. Pin Assignment

CFexpress Board (Type-B)

Table6 Pin assignment and description for signal and power pins for CFexpress card (Type-B)

Number	Name	Description
P1	GND	Ground
P2	PERn1	PCIe RX Differential signals lane1
P3	PERp1	
P4	GND	Ground
P5	PETn1	PCIe TX Differential signals lane1
P6	PETp1	
P7	NC	NO Connect
P8	NC	NO Connect
P9	PERST#	PE-Reset is a functional reset to the card
P10	3.3V	3.3V source
P11	CLKREQ#	Clock Request is a reference clock request signal
P12	INS#	NO Connect
P13	REFCLKn	PCIe Reference Clock signals(100MHz)
P14	REFCLKp	
P15	GND	Ground
P16	PERn0	PCIe RX Differential signals lane0
P17	PERp0	
P18	GND	Ground
P19	PETn0	PCIe TX Differential signals lane0
P20	PETp0	
P21	GND	Ground

6. Standards Compliance

Exascend Archon CFexpress card complies with following standards:

FCC

CE

RoHS

Warranty Terms

We offer a five (5) years limited warranty for our commercial CFexpress products.

The warranty period is the SHORTER OF:

- a period of five (5) years beginning from the date of purchase; or
- the period ending when the drive reached advertised DWPD or TBW rating; or
- The period ending when device's Lifespan indicator reaches an abnormal value.

This Limited Warranty will not apply to, and Exascend will have no liability or obligation with respect to, problems or damage resulting from any of the following: (i) accident, modification, neglect, abuse, careless or incorrect handling, misuse or improper operation, disassembly, misapplication or use in unusual physical environments or under operating conditions not approved by Exascend (including, but not limited to, use of the Product with an improper voltage supply); (ii) normal wear and tear; (iii) removal of label(s) or sticker(s) provided on or with the Product (including all warranty or quality-control stickers, product serial or electronic numbers); (iv) problems relating to or residing in non-Exascend hardware, software or other items with which the Product is used; (v) use in an environment, in a manner or for a purpose for which the Product was not designed or not in accordance with Exascend's published documentation; (vi) installation, modification, alteration or repair by anyone other than Exascend or its authorized representatives; (vii) problems that do not relate to materials or workmanship or that have an insignificant impairment on the use or operation of the Product; or (viii) problems related to consumables; (ix) Product purchased "AS-IS" or "with known faults, defects or problems." Additionally, Exascend will have no liability or obligation to recover any data in the Product.

DISCLAIMER OF LIABILITY

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Customers must not use Exascend products in applications that the products failure or malfunction may cause death of life or body injury such as life support system or devices.

Exascend shall not be liable for any loss, injury or damage caused by use of the products in any of the following applications.

- **Medical related devices, life support, medical measurement devices, etc.**
- **Control device for train, ship, mass transportation system or automotive vehicles, etc.**
- **Specific applications, military/defense related equipment, aerospace, nuclear facility control system, etc.**
- **Safety system for disaster prevention/crime prevention, etc.**

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