# Apacer

## The Most **Reliable** Storage For Industries

### ST170-CFast







### ST170-CFast

#### **Overview**

Apacer ST170-CFast is the latest enhancement of conventional CFast form factor that delivers various technological advantages. It utilizes 3D NAND for higher capacity up to 480 GB and provides more power efficiency than 2D NAND. This new flash memory card comes with SATA 6.0 Gbps interface for higher performance and consists of SATA-based 7-pin signal segment and 17-pin for power and control purposes. Designed without DRAM on the internal controlling unit, ST170-CFast ensures data integrity by preventing data loss during a sudden power outage.



#### **Feature**

- Support LDPC ECC
- Global Wear Leveling
- Flash bad-block management
- S.M.A.R.T. SSD Widget
- Power Failure Management
- End-to-End Data Protection
- TRIM Support
- · Mechanical design available in 7mm height

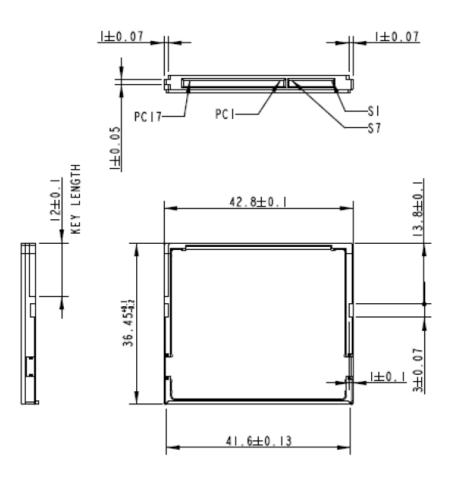


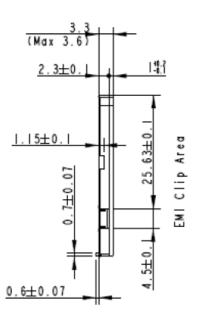
## **Specifications**

Interface  SATA 3.0 (6Gb/s)  Connector  (7+17) pin female  Form Factor  CFast  NAND Flash Type  3D TLC  Capacity  30GB~480GB  External DRAM  No  Sustained Read Performance (MB/sec)  Up to 560  Sustained Write Performance (MB/sec)  ECC Engine  Low-Density Parity-Check (LDPC) Code  IOPS (4K Random Write)  84K  Standard Operating Temperature (°C)  Storage Temperature (°C)  Thermal Sensor  YES  Shock  Operation: 50G, 11ms Non-operation: 1500G, 0.5ms  Operation: 7.69 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (sompliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (sompliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (sompliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (sompliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (sompliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (sompliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (sompliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (sompliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (sompliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (sompliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (sompliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (sompliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (sompliant with MIL-STD-810G)	Model	ST170-CFast
Form Factor  NAND Flash Type  3D TLC  Capacity  30GB~480GB  External DRAM  No  Sustained Read Performance (MB/sec)  Sustained Write Performance (MB/sec)  ECC Engine  Low-Density Parity-Check (LDPC) Code  IOPS (4K Random Write)  84K  Standard Operating Temperature (°C)  Storage Temperature (°C)  Housing  YES  H/W Write Protect  NO  Screw Hole  Thermal Sensor  YES  Shock  Operation: 50G, 11ms Non-operation: 1500G, 0.5ms  Operation: 7.69 Grms, 20~2000 Hz/random (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 25 ma / Idle mode: 90 mA  Dimension (L x W x H)  36.4 mm x 42.8 mm x 3.6mm	Interface	SATA 3.0 (6Gb/s)
NAND Flash Type  Capacity  Sustained Read Performance (MB/sec) Sustained Write Performance (MB/sec)  ECC Engine  Low-Density Parity-Check (LDPC) Code  IOPS (4K Random Write)  Standard Operating Temperature (°C)  Core + 70  Storage Temperature (°C)  Housing  H/W Write Protect  NO  Screw Hole  NO  Thermal Sensor  YES  Shock  Operation: 50G, 11ms Non-operation: 1500G, 0.5ms  Operation: 50G, 11ms Non-operation: 1500G, 0.5ms  Operation: 7.69 Grms, 20~2000 Hz/random (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G)  Operating Voltage  3.3V ± 5% (3.135-3.465V)  Power Consumption  Active mode: 355 mA / Idle mode: 90 mA  Dimension (L x W x H )  36.4 mm x 42.8 mm x 3.6mm	Connector	(7+17) pin female
Capacity  External DRAM  No  Sustained Read Performance (MB/sec)  Sustained Write Performance (MB/sec)  ECC Engine  Low-Density Parity-Check (LDPC) Code  IOPS (4K Random Write)  84K  Standard Operating Temperature (°C)  Housing  YES  H/W Write Protect  NO  Screw Hole  Thermal Sensor  YES  Shock  Operation: 7.69 Grms, 20~2000 Hz/random (compliant with MIL-STD-810G)  Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G)  Operating Voltage  3.3V ± 5% (3.135-3.465V)  Power Consumption  Active mode: 355 mA / Idle mode: 90 mA  Dimension (L x W x H )  36.4 mm x 42.8 mm x 3.6mm	Form Factor	CFast
External DRAM  Sustained Read Performance (MB/sec)  Sustained Write Performance (MB/sec)  ECC Engine  Low-Density Parity-Check (LDPC) Code  IOPS (4K Random Write)  84K  Standard Operating Temperature (°C)  O ~ + 70  Storage Temperature (°C)  Housing  YES  H/W Write Protect  NO  Screw Hole  Thermal Sensor  YES  Shock  Operation: 50G, 11ms Non-operation: 1500G, 0.5ms  Operation: 7.69 Grms, 20~2000 Hz/random (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G)  Operating Voltage  3.3V ± 5% (3.135-3.465V)  Power Consumption  Active mode: 355 mA / Idle mode: 90 mA  Dimension (L x W x H )  36.4 mm x 42.8 mm x 3.6mm	NAND Flash Type	3D TLC
Sustained Read Performance (MB/sec)  Sustained Write Performance (MB/sec)  ECC Engine  Low-Density Parity-Check (LDPC) Code  LOPS (4K Random Write)  Standard Operating Temperature (°C)  Code Tops (°C)  Housing  H/W Write Protect  NO  Screw Hole  Thermal Sensor  Shock  Operation: 50G, 11ms Non-operation: 1500G, 0.5ms  Operation: 1500G, 0.5ms  Operation: 7.69 Grms, 20~2000 Hz/random (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G)  Operating Voltage  3.3V ± 5% (3.135-3.465V)  Power Consumption  Active mode: 355 mA / Idle mode: 90 mA  Dimension (L x W x H )  36.4 mm x 42.8 mm x 3.6mm	Capacity	30GB~480GB
Sustained Write Performance (MB/sec)  ECC Engine  Low-Density Parity-Check (LDPC) Code  1OPS (4K Random Write)  Standard Operating Temperature (°C)  Storage Temperature (°C)  Housing  YES  H/W Write Protect  NO  Screw Hole  NO  Thermal Sensor  YES  Shock  Operation: 50G, 11ms Non-operation: 1500G, 0.5ms  Vibration  Operation: 7.69 Grms, 20~2000 Hz/random (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G)  Operating Voltage  3.3V ± 5% (3.135-3.465V)  Power Consumption  Active mode: 355 mA / Idle mode: 90 mA  Dimension (L x W x H)  36.4 mm x 42.8 mm x 3.6mm	External DRAM	No
ECC Engine  Low-Density Parity-Check (LDPC) Code  1OPS (4K Random Write)  Standard Operating Temperature ( °C )  Storage Temperature ( °C )  Housing  YES  H/W Write Protect  NO  Screw Hole  NO  Thermal Sensor  Shock  Operation: 50G, 11ms Non-operation: 1500G, 0.5ms  Operation: 7.69 Grms, 20~2000 Hz/random (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G) Operating Voltage  3.3V ± 5% (3.135-3.465V)  Power Consumption  Active mode: 355 mA / Idle mode: 90 mA  Dimension (L x W x H )  36.4 mm x 42.8 mm x 3.6mm	Sustained Read Performance (MB/sec)	Up to 560
IOPS (4K Random Write)84KStandard Operating Temperature (°C)0 ~ + 70Storage Temperature (°C)-40 ~ + 100HousingYESH/W Write ProtectNOScrew HoleNOThermal SensorYESShockOperation: 50G, 11ms Non-operation: 1500G, 0.5msVibrationOperation: 7.69 Grms, 20~2000 Hz/random (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G)Operating Voltage3.3V ± 5% (3.135-3.465V)Power ConsumptionActive mode: 355 mA / Idle mode: 90 mADimension (L x W x H)36.4 mm x 42.8 mm x 3.6mm	Sustained Write Performance (MB/sec)	Up to 495
Standard Operating Temperature (°C)0 ~ + 70Storage Temperature (°C)-40 ~ + 100HousingYESH/W Write ProtectNOScrew HoleNOThermal SensorYESShockOperation: 50G, 11ms Non-operation: 1500G, 0.5msVibrationOperation: 7.69 Grms, 20~2000 Hz/random (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G)Operating Voltage3.3V ± 5% (3.135-3.465V)Power ConsumptionActive mode: 355 mA / Idle mode: 90 mADimension (L x W x H)36.4 mm x 42.8 mm x 3.6mm	ECC Engine	Low-Density Parity-Check (LDPC) Code
Storage Temperature (°C)  Housing  YES  H/W Write Protect  NO  Screw Hole  NO  Thermal Sensor  YES  Shock  Operation: 50G, 11ms Non-operation: 1500G, 0.5ms  Operation: 7.69 Grms, 20~2000 Hz/random (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G)  Operating Voltage  3.3V ± 5% (3.135-3.465V)  Power Consumption  Active mode: 355 mA / Idle mode: 90 mA  Dimension (L x W x H)  36.4 mm x 42.8 mm x 3.6mm	IOPS (4K Random Write)	84K
Housing  H/W Write Protect  NO  Screw Hole  NO  Thermal Sensor  Shock  Operation: 50G, 11ms Non-operation: 1500G, 0.5ms  Operation: 7.69 Grms, 20~2000 Hz/random (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G)  Operating Voltage  3.3V ± 5% (3.135-3.465V)  Power Consumption  Active mode: 355 mA / Idle mode: 90 mA  Dimension (L x W x H)  36.4 mm x 42.8 mm x 3.6mm	Standard Operating Temperature ( °C )	0 ~ + 70
H/W Write Protect  Screw Hole  NO  Thermal Sensor  YES  Operation: 50G, 11ms Non-operation: 1500G, 0.5ms  Operation: 7.69 Grms, 20~2000 Hz/random (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G)  Operating Voltage  3.3V ± 5% (3.135-3.465V)  Power Consumption  Active mode: 355 mA / Idle mode: 90 mA  Dimension (L x W x H )  36.4 mm x 42.8 mm x 3.6mm	Storage Temperature ( °C )	-40 ~ + 100
Screw HoleNOThermal SensorYESShockOperation: 50G, 11ms Non-operation: 1500G, 0.5msVibrationOperation: 7.69 Grms, 20~2000 Hz/random (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G)Operating Voltage3.3V ± 5% (3.135-3.465V)Power ConsumptionActive mode: 355 mA / Idle mode: 90 mADimension (L x W x H)36.4 mm x 42.8 mm x 3.6mm	Housing	YES
Thermal Sensor  Shock  Operation: 50G, 11ms Non-operation: 1500G, 0.5ms  Operation: 7.69 Grms, 20~2000 Hz/random (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G)  Operating Voltage  3.3V ± 5% (3.135-3.465V)  Power Consumption  Active mode: 355 mA / Idle mode: 90 mA  Dimension (L x W x H)  36.4 mm x 42.8 mm x 3.6mm	H/W Write Protect	NO
Shock  Operation: 50G, 11ms Non-operation: 1500G, 0.5ms  Operation: 7.69 Grms, 20~2000 Hz/random (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G)  Operating Voltage  3.3V ± 5% (3.135-3.465V)  Power Consumption  Active mode: 355 mA / Idle mode: 90 mA  Dimension (L x W x H)  36.4 mm x 42.8 mm x 3.6mm	Screw Hole	NO
Non-operation: 1500G, 0.5ms  Operation: 7.69 Grms, 20~2000 Hz/random (compliant with MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G)  Operating Voltage  3.3V ± 5% (3.135-3.465V)  Power Consumption  Active mode: 355 mA / Idle mode: 90 mA  Dimension (L x W x H)  36.4 mm x 42.8 mm x 3.6mm	Thermal Sensor	YES
Vibrationwith MIL-STD-810G) Non-operation: 4.02 Grms, 15 ~ 2000 Hz/sine (compliant with MIL-STD-810G)Operating Voltage3.3V ± 5% (3.135-3.465V)Power ConsumptionActive mode: 355 mA / Idle mode: 90 mADimension (L x W x H)36.4 mm x 42.8 mm x 3.6mm	Shock	•
Power Consumption  Active mode: 355 mA / Idle mode: 90 mA  Dimension (L x W x H)  36.4 mm x 42.8 mm x 3.6mm	Vibration	with MIL-STD-810G) Non-operation: 4.02 Grms, 15 $^{\sim}$ 2000 Hz/sine (compliant
Dimension (L x W x H ) 36.4 mm x 42.8 mm x 3.6mm	Operating Voltage	3.3V ± 5% (3.135-3.465V)
	Power Consumption	Active mode: 355 mA / Idle mode: 90 mA
MTBF (hours) >1.000.000	Dimension (L x W x H )	36.4 mm x 42.8 mm x 3.6mm
	MTBF (hours)	>1,000,000



### **Mechanical Specification**





Unit: mm

## For more information, contact your Apacer representative

#### **Global Presence**

Taiwan (Headquarters) Apacer Technology Inc. Tel: +886-2-2267-8000 Fax: +886-2-2267-2261

Apacer Technology B.V. Tel: +31-40-267-0000 Fax: +31-40-290-0686 U.S.A. Apacer Memory America, Inc. Tel: +1-408-518-8699 Fax: 1-510-249-9551 China Apacer Electronic(Shanghai) Co., Ltd. Tel: +86-21-6228-9939

Japan

Apacer Technology Corp. Tel: +81-3-5419-2668 Fax: +81-3-5419-0018 Apacer Technologies Pvt. Ltd. Tel: +91-80-41529061~3 Fax: +91-80-41700215