

swissbit®

Product Fact Sheet

Industrial  
CFast™ Card

**F-240 Series**

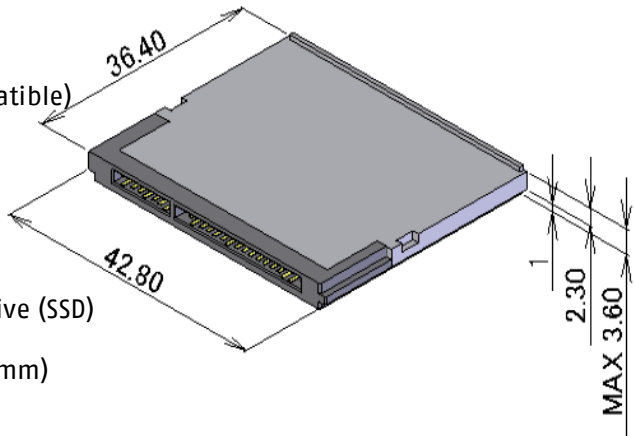
SATA II, UDMA6, TRIM, low power



# F-240 SERIES – INDUSTRIAL CFAST™ CARD WITH SATA INTERFACE

## 1 Features

- Highly-integrated memory controller
  - SATA Rev 2.6 – 3Gbit/s (1.5Gbit/s compatible)
  - max. UDMA6 MDMA2, PIO4, supported
  - Hardware BCH-code ECC (24bit correction per double sector or 6bit per sector)
  - Fix drive configuration
- Small form factor:
  - CompactFlash card sized Solid State Drive (SSD) with SATA interface
  - 42.8mm x 36.4mm x 3.3mm (max. 3.6mm)
- 7+17 pin (SATA+power) CFAST connector
- 3.3V ± 5% power supply
- Very low Power, typical 140mA in transfer operation (CFAST Power level 0)
- Activity at LED1 and SATAlink LED output and LED2 pin
- write protect at connector IO1 pin
- Special features
  - S.M.A.R.T. support with additional vendor information, interpretation with Swissbit life time monitoring tool
  - TRIM command
  - NCQ queue depth 32
  - HPA (Host protected area)
  - Security mode feature set
  - LBA48 command set
  - host initiated power management requests
  - write protection with vendor command
- Wear Leveling: active wear leveling of static and dynamic data  
The wear leveling assures that dynamic data as well as static data is balanced evenly across the memory. With that the maximum write endurance of the device is guaranteed.
- Read disturb management (refresh data when flash often read)
- High reliability
  - Best available SLC NAND Flash technology
  - Designed for embedded market
  - MTBF > 2,500,000 hours
  - Data reliability: < 1 non-recoverable error per 10<sup>14</sup> bits read
  - Number of connector insertions/removals: >10,000
- High performance
  - Up to 300MB/s burst transfer rate in SATA II – 3.0Gb/sec
  - Sustained Write performance: up to 120MB/s (4channel)
  - Sustained Read Performance: up to 120MB/s (4channel)
- Available densities
  - 2GByte up to 64GByte (SLC NAND Flash)
- 2 Temperature ranges
  - Commercial Temperature range                    0 ... +70°C
  - Industrial Temperature range                        -40 ... +85°C
- Life Cycle Management
- Controlled BOM
- RoHS compatible



**Table 1: System Performance**

System Performance	typ	max	Unit
Data transfer Rate (SATA burst)	3.0 (1.5)	3.0	Gbit/s
Sustained Read (typ. measured)	116	120	MB/s
Sustained Write (typ. measured)	114	120	

- All values refer to 32GB card with Toshiba 4x TH58NVG6S2FTA20, SSD in UDMA mode 5, SATA 3.0Gbit/s, write/read data sequential.
- Sustained Speed depends on flash type and number, file size, and burst speed

**Table 2: Current consumption<sup>(1)</sup> at 3.3V ± 5%**

Current Consumption (type)	3.3V	Unit
Read (typ/max)	170/250	mA
Write (typ/max)	180/250	
Idle Mode (typ/max)	85/100	

- All values are typical at 25° C and nominal supply voltage and refer to 16GByte CFAST card.

**Table 3: Environmental Specifications**

Environmental Specifications	Operating	Non Operating
Temperature (commercial)	0 to 70°C	-40 to 85°C
Temperature (industrial)	-40 to 85°C	-50 to 95°C
Humidity (non-condensing)	85% RH, at 85°C	max. 95% RH, at 85°C
Vibration (peak -to-peak)	20G Peak, 10 to 2000Hz	
Shock	1500G, 0.5ms duration, half sine wave	
Connector Durability	10,000 mating cycles, without exceeding low-level contact resistance	

**Table 4: Physical Dimensions**

Physical Dimensions		Unit
Width	36.4	mm
Height	42.8	
Thickness	3.6	
Weight (typ.)	10	g

**Table 5: CFAST capacity specification**

Capacity	Default_cylinders	Default_heads	Default_sectors _track	Sectors_drive	Total addressable capacity (Byte)
2GB	3,866	16	63	3,896,928	1,995,227,136
4GB	7,732	16	63	7,793,856	3,990,454,272
8GB	15,498	16	63	15,621,984	7,998,455,808
16GB	16,383 <sup>*</sup> )	16	63	30,788,352	15,763,636,224
32GB	16,383 <sup>*</sup> )	16	63	61,608,960	31,543,787,520
64GB	16,383 <sup>*</sup> )	16	63	125,304,832	64,156,073,984

<sup>\*</sup>) The CHS addressing is limited to about 8GB. Larger drives should be used in LBA mode.

**Table 6: System Reliability and Maintenance**

MTBF (at 25°C)	> 2,500,000 hours
Data Reliability	< 1 Non-Recoverable Error per 10 <sup>14</sup> bits Read

(1) Dependent on final system qualification data.

The CFA logo and CFAST are trademarks of the CompactFlash Association.

For more information on the CFAST interface, please visit Compact Flash Organization at [www.compactflash.org](http://www.compactflash.org)

For more information on Serial ATA Revision 2.6, please visit Serial ATA International Organization at [www.serialata.org](http://www.serialata.org)



## Why Swissbit?

Swissbit strives to create innovative technologies for future market opportunities utilizing a highly skilled in-house product research and development team. Swissbit maintains a marketing edge by continuing to manufacture world-class high quality memory products and providing customers with both high value and low cost of ownership achieved through efficient processes and procedures.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.