SCSIFlash-2 (SF2 and SF2R) Data Sheet/Environmental Specification

"WARNING: This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual and the relevant interface specification, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A digital device pursuant to Subpart J of Part 15 of FCC Rules, which are intended to provide reasonable protection against such interference when correctly installed and operated in a commercial or industrial environment. Operation of this equipment in a residential area without the appropriate enclosure and cabling is likely to cause interference in which case the Integrator at his own expense will be required to take whatever measures may be required to correct the situation."

Electromagnetic Compatibility and Electrical Safety

This product (SF-2) meets the EMC requirements of FCC part 15 class A, EN55022:2010, EN 55024:2010, meeting the requirements of the EU Electromagnetic Compatibility directive 2004/108/EC. This includes Radiated Emissions E-field (*3.2.1) and Radiated Immunity (*3.3.1). To meet these criteria the SF-2 is assumed to be suitably enclosed, cabled and installed.

Electrostatic Discharge

For the following ESD performance the SF-2 is assumed to be suitably enclosed, cabled and installed. The maximum ESD figures refer to those areas of the product exposed during normal operation. The SF-2 will not be damaged and will continue to operate without the need for manual intervention.

ESD: Contact discharge -> +/-4kV
Air discharge -> +/-8kV

Note: (*2.1)

Electrical Fast Transients

For the following EFT performance the SF-2 is assumed to be suitably enclosed, cabled and installed. The maximum EFT figure refers to those areas of the product exposed during normal operation. The SF-2 will not be damaged and will continue to operate without the need for manual intervention

EFT: +/- 0.25kV

Note: The cable shall be screened in accordance with the appropriate interface standard (*2.2).

Electrical Safety

The SF-2 is a low voltage device (+5vdc supply).

Note: (*7)

Bonding and Grounding

The SF-2 is a low voltage, low current device with a common signal and chassis ground (which may be optionally isolated by factory request).

Note: (*9)

Performance

Burst Data	
Max Asynch	6.8 MB/sec
Max Synch	6.8 MB/sec
Avg Seek Time	<0.2 ms
Avg Latency	<0.2 ms
Corrected BER	Refer to note 1 below
MTBF	> 3,000,000 hrs
Drive Interface	SASI, SCSI I, SCSI II
Capacity	Up to 64 GB (depending on CF capacity and configuration)

Ethernet Option

1.6 to 2MB/s
(This is limited by the host/SF-2 interface. Users typically achieve between 0.75 and 1.23MB/s). Windows and OS9 GUIs are available.

Note 1: BER (error rate) is determined largely by the CF card. The cards are equipped with BCH ECC (Error Correction Code) functionality.

Environmental

Temperature (^{0}C)

Operating	0 to +70^{0}C (Refer to note 2 below)
Non-Operating	-25 to +85^{0}C

Note 2: Performance is warranted beyond the temperature limits of the emulated product. The temperature is the ambient skin temperature of the SF-2 standard open-frame chassis. A limited duration lower storage temperature limit of -40 ^{0}C is possible when stored in the original SSDL shipment package. A limited duration lower operating temperature of -5^{0}C is possible when housed in a suitable enclosure (a "limited duration" is less than 96 hours). (*4.1.2, 4.1.4, and 4.1.7)

For installation development purposes note that the highest temperature measured on the case of the component U5 (CPU) under worst case conditions must not exceed +102^{0}C.

Humidity

Humidity: 5% - 85% non-condensing (*4.1.2)

Earthquake, Shock and Vibration

Shock	(11 msec 1/2 sine)
Operating	100g
Non-Operating	1000g
Random Vibration	(20 to 2,000 Hz)
Operating	15g rms
Non-Operating	15g rms
Sine Vibration	(5-25 Hz)
Operating	15 G

Note: (*4.4.1 and 4.4.4)

Packaged Shock

The packaged unit will survive a 1 Metre drop test (*4.3.1 and 5.3.1)

Unpackaged Shock

The unpackaged unit will survive a 100mm drop test (*4.3.2 and 5.3.3)

Altitude (feet Operating)

30,000 feet (with enhanced cooling as required, refer to note 3)

Note 3: This is a provisional figure based on similar products (*4.1.3)

Gaseous Contaminants

The SF-2 is a solid state product and therefore has a much greater immunity to gaseous contaminants than the tape and disk products it replaces. Organic vapours can significantly affect disk drive and magnetic tape reliability and ozone can lead to degradation of polymeric media substrate materials. The SF-2 passes industry standard tests for susceptibility with regard to Nitrogen Dioxide, Sulphur Dioxide, and Hydrogen Sulphide.

Note (*5.5.2)

Hygroscopic Dust

The SF-2 is a solid state product and therefore has a much greater immunity to particulate contaminants, sulfates, nitrides and water soluble salts than the tape and disk products it replaces. The SF-2 passes industry standard tests for susceptibility to particulate contamination, but it is recommended that sensible precautions are taken with regard to overall enclosure design, general installation and cooling. If cooling fans are employed they should be fitted with suitable particulate filters.

Note: (*5.5.3)

Physical Dimensions (inches)

H	1.37
W	5.83
D	6.08
Weight (lbs)	0.75

Power Requirements

Supply Voltage

The required input supply is **+5Vdc** ± 5%

The maximum periodic and random distortion (noise and ripple) must be less than <150 mv peak-to-peak.

Note: Only +5vdc is required, no 12vdc supply is required or monitored.

Supply Current

The following figures are for a combination of the SCSIFlash-2 product and SSDL recommended SLC Compact Flash (4GB). Refer also to note 3.

a) Non-Ethernet variant or no Ethernet activity:

Quiescent: 300mA typical
Write/Format: 500mA typical, 600mA maximum

b) Ethernet variant with live Ethernet connection:

Quiescent: 400mA typical
Write/Format: 600mA typical, 700mA maximum

Note 3: The combination is specified as the SF-2's operational specification cannot be separated from that of the approved CF. Similarly the host connection and termination method may impact the current drawn. The figures provided apply to a typical PC host connection with on-board SCSIFlash-2 termination enabled and using a 4GB CF (SF4GB-I-CF-T-INO).

Statutory and Regulatory standard compliance

RoHS (aside from legacy devices)
FCC
CE

Durability (Removable CF Media)

10,000 CF Insertions/Removals

Reliability/Field MTBF

8,000,000 Hours

This MTBF figure is based on analysis of the installed base of the SF-1 and SF-2 products operating in a known telecommunications environment. A full report is available on request. (Note: SF-1 is the earlier version of the SF-2).

Transportation and Storage Environment

The environmental limits in this section apply to the SF-2 when packaged in its normal shipping container:-

Low-Temperature Exposure and Thermal Shock

23^0C to -40^0C at a maximum rate of 30^0C/hr
-40^0C for 72 hours or less
-40^0C to 23^0C in a period of 5 minutes or more

Note: Uncontrolled humidity. (*4.1.1.1)

High-Relative-Humidity Exposure

23^0C to 40^0C at 50% RH at a maximum rate of 30^0C/hr
40^0C at between 50% and 93% RH within 2 hours or less
40^0C at 93% RH for 96 hours or less
40^0C at between 93% and 50% RH within 2 hours or less
40^0C to 23^0C at 50% RH at a maximum rate of 30^0C/hr

Note: (*4.1.1.2)

High-Temperature Exposure and Thermal Shock

23^0C to 70^0C at a maximum rate of 30^0C/hr
70^0C for 72 hours or less
70^0C to 23^0C in a period of 5 minutes or more

Note: Uncontrolled humidity. (*4.1.1.3)

***NEBS**

When suitably packaged and cabled, in an appropriate rack or enclosure, the SF-2 meets the requirements of the NEBS standard, as defined in GR-63-CORE Issue 4, GR-1089-CORE Issue 6 and associated criteria, for use in a public switch. The paragraph numbers in these documents are referred to in parenthesis in this specification.

SF2 versus SF2R

The above specification applies equally to both these variants. The SF2R (SF2 Reversed) is a variant with the power and data connectors interchanged to better match some host installations.

Caveats

This specification is provisional and subject to changes and additions. The published specification cannot be guaranteed in any respect for MLC based CF or for any unapproved CF devices. To do so would require separate specifications for each combination of SCSIFlash-2 and CF, this is unrealistic.