

BOLDFlash – Technical Service Communication Artifact

In preparation for a new product release, Karl Melzer, director of product development for the Mobile Division, sent the memo below to all department heads. The attached document was produced by his R&D team to describe their latest product, a solid-state disk drive.

R&D produces documents like the product description to inform other groups within the division, including Marketing and Technical Support (a sub-group within Sales). The only other product information provided by R&D is installation/configuration instructions.

Marketing is dependent on documents such as this to develop their sales product brochures, product advertising, and other customer-oriented materials. They use these materials at trade shows, in press releases, and on the company website.

The Technical Support team uses new product description documents along with installation documentation from R&D, and sometimes documents from Marketing, to assist customers who request assistance.

As you review the memo and product description, consider how staff members of the Marketing and Technical Support teams might react. Also consider their needs in utilizing such information in performing their own potential tasks related to this new product. Does the information being provided help them? Are there aspects of product information that may be lacking or missing altogether?

The following sample communication is adapted from information from [Seagate Technology LLC](#).

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*BOLDFlash Corporation
18 Commerce Boulevard
Manchester, New Hampshire*

From: Karl Melzer - Director, Product Development
To: All department heads
Subject: Product Description

Here is the product description for the SSD being released to Manufacturing later this week.

We all know things were a bit rocky with getting this product through development. There is still last-minute work under way on final design details, but this will be good enough for you all to get started with. And we wanted to get this out since we've had to move the team on to the new higher-speed drive since that looks like a hot opportunity for us.

As I mentioned at the last Quarterly Review, we are changing the format of the product description to streamline things. I trust that everyone saw the sample that we had available, so this should be no surprise.

The new format is being implemented for this new SSD. While it will look different, it still includes the important parts, so you should be all set.

Karl



*BOLDFlash Corporation
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**New Product Description
BOLDFast Product #D45-v3.21**

Specifications SSD32-100

Model Number D45-v3.21

Interface Options SATA 6Gb/s

NAND Flash Type MLC

Performance

Sustained Data Transfer Rate (MB/s) 520

I/O Data Transfer Rate, Max (MB/s) 600

Sequential Read/Write Command Rate (MB/s) Peak, 128KB 520/450

Random Read/Write Command Rate (KIOPS) Peak, 4KB 85/11

Configuration/Reliability

Nonrecoverable Read Errors per Bits Read, Max 1 per 10E16

Annualized Failure Rate (AFR) 0.58%

Total Terabytes Written (TBW) Enterprise Workload Over Warranty Period 500

Total Terabytes Written (TBW) Sequentially Over Warranty Period 2630

Limited Warranty With Media Usage (years) 5

Power Management

+5V Max Start Current (A) 0.5

Average Sleep Power (W) 0.5

Average Idle Power (W) 1.25 1.25

Average Operating Power (W) 2.8

Environmental

Internal Operating Temperature (°C) 0 to 70

Nonoperating Temperature (°C) -40 to 75

Temperature Change Rate/Hr, Max (°C) 20

Relative Humidity, Noncondensing (%) 5 to 95

Shock, 0.5ms (Gs) 1000

Vibration, 20Hz to 2000Hz (Grms) 11.08

Physical

Height (mm/in) 7.0/0.276

Width (mm/in) 70.10/2.76

Depth (mm/in) 100.45/3.955

Weight (g/lb) 100/0.220

Carton Unit Quantity 20

Cartons per Pallet 45

Cartons per Layer 9

Important product notes!

LBA mode

When addressing these drives in LBA mode, all blocks (LBAs) are consecutively numbered from 0 to $n-1$, where n is the number of guaranteed LBAs as defined above. See Section 4.3.1, "Identify Device command" (words 60-61 and 100-103) for additional information about 48-bit addressing support of drives with capacities over 137GB.

Performance

Sustained performance is the typical worst-case performance that the product will be able to achieve when the product is preconditioned as mentioned and host commands are aligned on 4KB boundaries. For models that support Lifetime Endurance Management, write values also take into account worst-case performance throttling to ensure the product meets specifications.

Time to Ready

Power-on to Ready for media-related commands is defined as the time that it will take the drive to respond from the application power until it is ready to accept commands from the host that require access to the flash media. Commands such as FPDMA Read Extended and FPDMA Write Extended are examples of media-related commands. This value includes the time needed to charge the Power Loss Data Protection Circuit to a level that is adequate to protect customer data from unexpected power loss.

Nonoperating shock

The nonoperating shock level that the drive can experience without incurring physical damage or degradation in performance when subsequently put into operation is 1000 Gs based on a half-sine shock pulse of 0.5ms duration.

Set Features command values

02H Enable write cache (default).
03H Set transfer mode (based on value in Sector Count register).
Sector Count register values:
00H Set PIO mode to default (PIO mode 2).
01H Set PIO mode to default and disable IORDY (PIO mode 2).
08H PIO mode 0
09H PIO mode 1
0AH PIO mode 2
20H Multiword DMA mode 0
21H Multiword DMA mode 1
22H Multiword DMA mode 2

Reliability

AFR and MTBF specifications assume the operating environment is designed to maintain nominal internal temperature. The rated AFR is based upon a sustained internal temperature of 60°C. Occasional excursions in operating temperature between the rated MTBF temperature and the maximum drive operating temperature may occur without impact to the rated MTBF temperature. However, continual or sustained operation at temperatures beyond the rated MTBF temperature will degrade the drive MTBF and reduce product reliability.