

Intel SSD died

```
smartctl 6.6 2017-11-05 r4594 [x86_64-linux-4.19.0-4-amd64] (local build)
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```

```
=== START OF INFORMATION SECTION ===
```

```
Device Model:      INTEL SSDSA2BW160G3H
Serial Number:     BAD_CTX      00000136
LU WWN Device Id: 5 001517 a6be8caac
Firmware Version: 4PC10365
User Capacity:     8,388,608 bytes [8.38 MB]
Sector Size:       512 bytes logical/physical
Rotation Rate:     Solid State Device
Device is:         Not in smartctl database [for details use: -P showall]
ATA Version is:    ATA8-ACS T13/1699-D revision 4
SATA Version is:   SATA 2.6, 3.0 Gb/s
Local Time is:     Sat Apr 27 17:23:39 2019 CEST
SMART support is:  Unavailable - device lacks SMART capability.
```

```
=== START OF ENABLE/DISABLE COMMANDS SECTION ===
```

```
SMART Enable failed: scsi error badly formed scsi parameters
```

```
A mandatory SMART command failed: exiting. To continue, add one or more '-T permissive' options.
```

```
dpavlin@x200:~$ sudo hdparm -i /dev/sdc
```

```
/dev/sdc:
```

```
Model=INTEL SSDSA2BW160G3H, FwRev=4PC10365, SerialNo=BAD_CTX      00000136
Config={ Fixed }
RawCHS=16383/16/63, TrkSize=0, SectSize=0, ECCbytes=0
BuffType=unknown, BuffSize=unknown, MaxMultSect=16, MultSect=1
CurCHS=16/16/63, CurSects=16128, LBA=yes, LBAsects=16384
IORDY=on/off, tPIO={min:120,w/IORDY:120}, tDMA={min:120,rec:120}
PIO modes:  pio0 pio3 pio4
DMA modes:   mdma0 mdma1 mdma2
UDMA modes: udma0 udma1 udma2 udma3 udma4 udma5 *udma6
AdvancedPM=no WriteCache=enabled
Drive conforms to: unknown: ATA/ATAPI-2,3,4,5,6,7
```

```
* signifies the current active mode
```

```
dpavlin@x200:~/intel-ssd$ sudo smartctl -a /dev/sdc > smartctl.1
```

```
dpavlin@x200:~/intel-ssd$ sudo hdparm -i /dev/sdc > hdparm-i.1
```

```
dpavlin@x200:~/intel-ssd$ sudo hdparm -I /dev/sdc > hdparm-I.1
```

Internet wisdom is that it's corrupted translation table and that secure erase or firmware update might help.

secure erase

https://ata.wiki.kernel.org/index.php/ATA_Secure_Erase

```
dpavlin@x200:~/intel-ssd$ sudo hdparm -I /dev/sdc | grep frozen
      not      frozen
```

```
# ok
```

```

root@x200:/home/dpavlin/intel-ssd# hdparm --user-master u --security-set-pass Eins /dev/sdc
security_password: "Eins"

/dev/sdc:
  Issuing SECURITY_SET_PASS command, password="Eins", user=user, mode=high

root@x200:/home/dpavlin/intel-ssd# hdparm -I /dev/sdc | grep -C 3 enabled
Security:
  Master password revision code = 65534
    supported
    enabled
  not    locked
  not    frozen
  not    expired: security count

root@x200:/home/dpavlin/intel-ssd# time hdparm --user-master u --security-erase Eins /dev/sdc
security_password: "Eins"

/dev/sdc:
  Issuing SECURITY_ERASE command, password="Eins", user=user

real    0m19.285s
user    0m0.001s
sys     0m0.004s

```

This I assume reseted traslation table on ssd. First invocation of smartctl complained that I have to use -s on to turn smart on, so I did.

And it seems to work. All smart counters are reset (beacuse smart was off after secure erase).

```

dpavlin@tab:~$ sudo smartctl -a /dev/sda | head -20
smartctl 6.6 2016-05-31 r4324 [x86_64-linux-4.9.0-8-amd64] (local build)
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=== START OF INFORMATION SECTION ===
Device Model:      INTEL SSDSA2BW160G3H
Serial Number:     BTPR144501A5160DGN
LU WWN Device Id: 5 001517 a6be8caac
Firmware Version: 4PC10365
User Capacity:     160,041,885,696 bytes [160 GB]
Sector Size:       512 bytes logical/physical
Rotation Rate:     Solid State Device
Device is:         Not in smartctl database [for details use: -P showall]
ATA Version is:    ATA8-ACS T13/1699-D revision 4
SATA Version is:   SATA 2.6, 3.0 Gb/s
Local Time is:     Tue Apr 30 21:48:39 2019 CEST
SMART support is:  Available - device has SMART capability.
SMART support is:  Enabled

=== START OF READ SMART DATA SECTION ===
SMART overall-health self-assessment test result: PASSED

dpavlin@tab:~$ sudo hdparm -i /dev/sda

/dev/sda:

Model=INTEL SSDSA2BW160G3H, FwRev=4PC10365, SerialNo=BTPR144501A5160DGN
Config={ Fixed }
RawCHS=16383/16/63, TrkSize=0, SectSize=0, ECCbytes=0
BuffType=unknown, BuffSize=unknown, MaxMultSect=16, MultSect=1
CurCHS=16383/16/63, CurSects=16514064, LBA=yes, LBAsects=312581808

```

```
IORDY=on/off, tPIO={min:120,w/IORDY:120}, tDMA={min:120,rec:120}
PIO modes: pio0 pio3 pio4
DMA modes: mdma0 mdma1 mdma2
UDMA modes: udma0 udma1 udma2 udma3 udma4 udma5 *udma6
AdvancedPM=no WriteCache=enabled
Drive conforms to: unknown: ATA/ATAPI-2,3,4,5,6,7
```

* signifies the current active mode

```
dpavlin@tab:~$ sudo hdparm -tT /dev/sda
```

```
/dev/sda:
```

```
Timing cached reads: 9340 MB in 2.00 seconds = 4675.95 MB/sec
Timing buffered disk reads: 736 MB in 3.01 seconds = 244.74 MB/sec
```

firmware update

<https://blog.cihar.com/archives/2012/07/13/intel-ssd-firmware-update-linux/>

But modified for recent Debian kernels

<https://downloadcenter.intel.com/download/28749/Intel-SSD-Firmware-Update-Tool?v=t>

```
dpavlin@x200:~$ unzip FirmwareUpdateTool_v3_0_7.zip -d FirmwareUpdateTool_v3_0_7
```

```
dpavlin@x200:~/FirmwareUpdateTool_v3_0_7$ sudo apt install grub-imageboot
```

```
dpavlin@x200:~/FirmwareUpdateTool_v3_0_7$ cat /etc/default/grub-imageboot
# Where to find the iso/floppy images
```

```
IMAGES="/boot/images"
```

```
# You can override the boot options for iso/floppy images here
# see http://syslinux.zytor.com/wiki/index.php/MEMDISK for details
```

```
#IMAGEOPTS="rawimg"
#ISOOPTS="iso"
```

```
dpavlin@x200:~/FirmwareUpdateTool_v3_0_7$ . /etc/default/grub-imageboot ; sudo mkdir -v $IMAGES
mkdir: created directory '/boot/images'
```

```
dpavlin@x200:~/FirmwareUpdateTool_v3_0_7$ sudo cp -v issdfut_64_3.0.7.iso /boot/images/
'issdfut_64_3.0.7.iso' -> '/boot/images/issdfut_64_3.0.7.iso'
```

```
dpavlin@x200:~/FirmwareUpdateTool_v3_0_7$ sudo update-grub
```

```
Generating grub configuration file ...
```

```
Found linux image: /boot/vmlinuz-4.19.0-4-amd64
Found initrd image: /boot/initrd.img-4.19.0-4-amd64
Found linux image: /boot/vmlinuz-4.19.0-2-amd64
Found initrd image: /boot/initrd.img-4.19.0-2-amd64
Found memdisk: /boot/memdisk
Found iso image: /boot/images/issdfut_64_3.0.7.iso
done
```

This doesn't boot on x200 dual-core for me.