100-Gigabyte, 2.5-Inch, SATA Enterprise Solid-State Drive

Installation and Specifications Guide

100-gigabyte, 2.5-inch, SATA Enterprise solid-state drives (SSDs) can be used as storage devices in servers that support them. This guide describes the pre-installation considerations and tasks involved in installing an SSD in a server, as well as device specifications and known issues.

Before You Begin

Refer to the product documentation for the server into which you will install the SSD for the following platform-specific information:

- Ensure that your system supports Serial ATA (SATA).

- Verify that the configuration you intend to use is supported on your platform. For example, do not mix SSDs with other drive types without first verifying that such a configuration is supported by the server into which you will install the SSD.

Preparing for Installation

1. **Before you install the SSD, verify that you have all of the hardware and information that will be required for the SSD installation, including the following:**

- If your server does not have a standard 2.5-inch drive tray into which you can install the SSD, you will receive an SSD that is pre-installed in a bracket, enabling it to fit properly into the drive tray.

- Obtain hardcopy or PDF versions of the service manual and product notes for the server into which you will install the SSD. Those documents will provide the platform-specific information you need to install the SSD into your specific server model.

2. **Familiarize yourself with the following safety guidelines to ensure that the system, the SSD, and the installer are protected during installation.**

- Keep the drive in the protective antistatic container until you are ready to install the SSD.

- Handle the SSD with care. Do not touch the connectors.

- Do not remove the encasement or disassemble the drive, as such actions void the warranty.

Installing an SSD

1. Update the firmware, which might include patches, as available and described in the instructions provided with the patch.

2. If required, power off the server for the installation of an SSD.

   In most systems, drives are hot-swappable, meaning they can be replaced without powering down the server. Refer to the product documentation for your server for detailed information. For some servers and configurations, you might need to power off the system. In other cases, you might need to take the drive offline, while leaving the system running.

3. If required, re-route the system hard drive cabling as described in the system service manual.

4. If you are installing an SSD into a drive tray that was previously occupied by another drive, remove the existing drive as described in the product documentation for the server.

5. Install the SSD into the drive tray as described in the product documentation for the server.

6. If you removed power from the system, restore power as described in the product documentation for the server.

Product Specifications

Category	Specification
Capacity	100 GB
Dimensions	100mm x 70mm x 7mm
NAND Flash components	Enterprise Multi-Level Cell (eMLC) NAND Flash memory
Bandwidth	Sustained sequential read: up to 270 MB/s Sustained sequential write: up to 210 MB/s
Form factor	2.5" industry standard hard drive form factor
Compatibility	SATA Revision 2.6 compliant with SATA 1.5 Gb/s and 3 Gb/s interface rates
Voltage	5V SATA supply rail
Operating temperature	0°C to +70°C

Downloading Patches and Updates

To download patches and updates from My Oracle Support, follow this procedure.

1. **Sign in to My Oracle Support:**

   https://support.oracle.com

2. **At the top of the page, click the Patches & Updates tab.**

3. **Search for software and patches in one of two ways:**

■ If you have a patch number:

   a. **Under the Patch Search section, click the Search tab.**

   b. **In the Patch Name or Number field, enter the patch number. For example, 10272123 or 141474-01.**

   c. **Click Search.**

■ If you do not have a patch number:

   a. **Under the Patch Search section, click the Search tab, and then click the Product or Family (Advanced Search) link.**

   b. **Check Include all products in a family.**

   c. **In the Product field, start typing the product name. Select the product name when it appears.**

   d. **In the Release field, expand the product name, check the release and patches you want to download, and then click Close.**

   e. **Click Search.**

4. **Select the patch you want to download.**

5. **Click ReadMe for a patch description and installation instructions.**

6. **Click Download for a single patch, or Add to Plan to download a group of patches.**

Known Issues

Review the following information concerning known issues at time of release.

Capacity of the Device Shows 8 MB

On a system that contains either an Intel 100 GB SSD drive (SSDSA2BZ100G3) or 300 GB SSD drive (SSDSA2BZ300G3), it is possible for a rare failure mode to occur immediately following a power-on of the system or hot-plugging of the said drives.

While SSD drives may fail for a number of reasons, with this particular failure the following symptoms will be observed:

- The capacity of the device shows 8 MB instead of 100 GB or 300 GB
- The device serial number shows "BAD_CTX 00000115" instead of a valid serial number

As a result of this specific failure other typical side effects may also be observed:

- If the device is a boot device, the system may indicate that no boot device is found.
- Whether or not the device is a boot device, other indications of a device failure may occur. For example, failure to mount, I/O errors on read, RAID or ZFS messages that a device has failed, etc.

This failure mode has only been seen on a small number of devices in a laboratory environment, and has been very difficult to reproduce. It is therefore important to inform Oracle that this particular failure has been encountered for further investigation. The Workaround section below explains how to identify if a failing SSD drive has experienced this particular failure mode.

Workaround – At present, there is no workaround to avoid this issue. Follow the instructions below to see if the device has encountered this rare condition. Contact your authorized Oracle Service provider for assistance, and in order to confirm whether this is indeed CR 7087398 - BAD_CTX 00000115. Please do not attempt to erase or reformat the device, as Oracle may request the device be returned for further analysis.

It is strongly recommended these devices be used in a redundant (RAID) environment, with backups performed at regular intervals, as this failure mode (as well as others) can result in the loss of all data on the device.

To determine if your device has encountered this rare condition, follow the instructions below based on your operating system.

▼ Solaris

1. **Become root.**

2. **Type the following:**

   ```
   prtconf -Dv | grep -in bad_ctx
   ```

   If the system returns "xxxx: VALUE='BAD_CTX 00000115", where xxxx is the line number in the output of prtconf, then a device has encountered this issue. In this case, proceed to Step 3. If there is no output as previously described, there are no devices in the system with this issue, and no further steps are necessary.

3. **If the output from Step 2 is "xxxx: VALUE='BAD_CTX 00000115", then redirect the prtconf output to a text file by typing the following:**

   ```
   prtconf -Dv > output.txt
   ```

4. **Open the output.txt file with a text editor and search for the word "BAD_CTX".**

5. **Within the device instance, look for the value in Device Minor Nodes->dev_link.**

   The value shown is the name of the device with this issue, as shown in the following example:

```
Device Minor Nodes:
                    dev=(89,0)
                        dev_path=/pci@0,0/pci8086,2e11@1/pci1000,3150@0:devctl
                            spectype=chr type=minor
                    dev=(89,1)
                        dev_path=/pci@0,0/pci8086,2e11@1/pci1000,3150@0:scsi
                            spectype=chr type=minor
                            dev_link=/dev/cfg/c8
             sd, instance #35 (driver name: sd)
                    System software properties:
                        name='ddi-devid-registrant' type=int items=1
                            value=00000001
                        name='sd_max_xfer_size' type=int items=1
                            value=00400000
                    Driver properties:
                        name='inquiry-serial-no' type=string items=1 dev=none
                            value='BAD_CTX    00000115'
```

▼ Oracle Enterprise Linux (OEL)

OEL comes with a utility called Disk Utility that can be found under Applications --> System Tools. Follow this procedure.

1. **Start Disk Utility.**

2. **In the left window, under the various storage controllers, find the Intel SSD under suspicion and click it.**

   Drive details will be displayed in the right window.

3. **In the Model field, verify that "INTEL SSDSA2BZ100G3" is displayed (for 100 GB drives) or "INTEL SSDSA2BZ300G3" is displayed (for 300 GB drives).**

4. **Verify the Serial Number field contains the value "BAD_CTX 00000115".**

▼ Other Linux (Without Disk Utility)

1. **Find the utility called hdparm, which normally ships with most Linux distributions.**

2. **Become root.**

3. **Type the following, where devname is the actual device name of the Intel SSD.**

   `hdparm -i <devname>`

4. **In the output, verify that the model number field contains "INTEL SSDSA2BZ100G3" (for 100 GB drives) or "INTEL SSDSA2BZ300G3" (for 300 GB drives).**

5. **Verify the Serial Number field contains the value "BAD_CTX 00000115".**

▼ Windows

1. Right-click on My Computer, then click Manage.

2. Under Storage, click Disk Management.

3. In the middle bottom window, scroll until you see the suspected drive.

If a drive shows "Unknown 8MB Not Initialized" or "8MB Unalloc" with 8MB shown as the whole device capacity, it is likely the drive is in the "BAD_CTX 00000115" condition.

Related Documentation

Documentation for this product is available at:

http://www.oracle.com/documentation

Feedback

Provide feedback on this document at:

http://www.oracle.com/goto/docfeedback

Support and Accessibility

Description	Links
Access electronic support through My Oracle Support	https://support.oracle.com
	For hearing impaired:
	http://www.oracle.com/accessibility/support.html
Learn about Oracle's commitment to accessibility	http://www.oracle.com/us/corporate/accessibility/index.html