Contents
1 GENERAL INFORMATION .................................................................................................................. 3
  1.1 Purpose ........................................................................................................................................ 3
  1.2 System requirements ...................................................................................................................... 3
  1.3 Information about supported Configuration by installer with this release: .................................... 4
  1.4 Generic system setup ..................................................................................................................... 4
2 BOOTABLE ARRAYS .......................................................................................................................... 5
  2.1 Copy AMD-RAID drivers to a removeable storage medium: Windows ...................................... 5
3 Pre-Installation Steps ....................................................................................................................... 6
  3.1 Platform BIOS Settings - Enable RAID ......................................................................................... 6
4 Create the Bootable Virtual Disk ..................................................................................................... 6
  4.1 RAIDxpert2 Configuration Utility (HII Mode) ............................................................................. 6
  4.2 UEFI Mode .................................................................................................................................... 7
5 Install AMD-RAID Drivers .............................................................................................................. 8
  5.1 Windows: Install AMD-RAID UEFI drivers during Windows OS installation ............................. 8
  Install the AMD-RAID UEFI drivers during Windows 10 OS Installation ....................................... 8
6 Install the AMD-RAIDXpert2 Management Suite and Web GUI .................................................. 9
  6.1 Windows – AMD-RAIDXpert2 Management Suite .................................................................. 9
  6.1.1 Windows – AMD RAIDXpert2 Management Suite Installation (Manually) ......................... 9
1 GENERAL INFORMATION

1.1 Purpose

This Installation Guide is designed to assist with system setup in RAID Mode, by performing these general procedures:
- Copy device drivers to removable storage media for the following operating systems:
  ✓ Microsoft® Windows 10 x64

Loading the device drivers on a system at the time that the Windows operating system is installed, then loading the AMD-RAIDXpert2 (Web GUI)

1.2 System requirements

<table>
<thead>
<tr>
<th>Component</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory (RAM)</td>
<td>Minimum: 8 GB, Recommended: 32 GB</td>
</tr>
<tr>
<td>Hard Disk</td>
<td>One to Fourteen SATA HDD’s, SATA SSD’s or NVMe</td>
</tr>
<tr>
<td>Max number of NVMe devices</td>
<td>10</td>
</tr>
<tr>
<td>Max Controller Count</td>
<td>11 (2 Controller with Device ID 7917, 1 controller with device ID 43BD and NVMe (1 controller per NVMe)</td>
</tr>
<tr>
<td>Supported AMD Controllers</td>
<td>AMD SP3-Series Chipsets</td>
</tr>
<tr>
<td>Systems used for testing</td>
<td>Summit SP3 based Whitehaven’s</td>
</tr>
</tbody>
</table>
### 1.3 Information about supported Configuration by installer with this release:

<table>
<thead>
<tr>
<th>OS Loaded in Drive</th>
<th>RAID Controller in BIOS</th>
<th>NVME/RAID mode in PBS BIOS Option</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>SoC RAID</td>
<td>SATA</td>
<td>RAID</td>
<td>CATALYST INSTALL MANAGER should prompt user to install RAID driver with Warning Message</td>
</tr>
<tr>
<td>SoC RAID</td>
<td>RAID</td>
<td>RAID</td>
<td>CATALYST INSTALL MANAGER should prompt user to install RAID driver with Warning Message</td>
</tr>
<tr>
<td>NvMe</td>
<td>RAID</td>
<td>NvMe</td>
<td>RAID Driver installation shall be blocked for all controllers</td>
</tr>
<tr>
<td>RAID/NVMe</td>
<td>SATA</td>
<td>RAID</td>
<td>CATALYST INSTALL MANAGER should prompt user to install RAID driver with Warning Message</td>
</tr>
<tr>
<td>SoC RAID</td>
<td>SATA</td>
<td>NvMe</td>
<td>CATALYST INSTALL MANAGER should prompt user to install RAID driver with Warning Message</td>
</tr>
<tr>
<td>NvMe</td>
<td>SATA</td>
<td>NvMe</td>
<td>RAID Driver installation shall be blocked for all controllers</td>
</tr>
<tr>
<td>SoC RAID</td>
<td>RAID</td>
<td>NvMe (But no NVMe devices are connected to the system)</td>
<td>RAID driver installation should happen for AMD and PT controllers</td>
</tr>
<tr>
<td>SoC RAID</td>
<td>SATA</td>
<td>RAID</td>
<td>Not supported with this release</td>
</tr>
<tr>
<td>SoC RAID</td>
<td>RAID</td>
<td>RAID</td>
<td>Not supported with this release</td>
</tr>
</tbody>
</table>

### 1.4 Generic system setup

A generic system setup process is described below.

1. Copy the **AMD-RAID** drivers to a removable storage medium. *(Refer to Section 2.1)*
2. Power-on the system.
3. Access the platform BIOS window for the system
   a. For supported AMD chipsets, set the SATA mode as RAID or enable NVMe RAID. *(Refer to Section 3.1)*
   b. This enables the loading of the **AMD-RAID** UEFI driver
4. Initialize the disks, using the RAIDXpert2 Configuration Utility or UEFI driver. *(Refer to Section 4.1)*
5. Create arrays, using the HII Configuration Utility or UEFI driver.
6. Load the **AMD-RAID** drivers during the system operating system installation. *(Refer to Section 5.1)*
7. Complete the rest of the operating system installation.
8. Install the OS RAID Management Suite (AMD RAIDXpert2). *(Refer to Section 6.1)*

**IMPORTANT:**

To protect your data; always perform a backup prior to installing any new, major hardware or software. If you are adding NVMe as RAID to your existing RAID arrays then update all existing RAID controller drivers to latest version and reboot the system. Later connect NVMe and install RAID driver on the NVMe devices.
Before you begin...

Have the Windows operating system installation media available and ready to install.

2 BOOTABLE ARRAYS

NOTE: Windows: Removeable storage (Flash Driver) required for Copying AMD-RAID drivers

2.1 Copy AMD-RAID drivers to a removeable storage medium: Windows

A removable storage medium is needed when the OS is installed to an AMD-RAID bootable array.

1. Power-on the system.

2. Locate and use a system that is running a Windows operating system and has a CD DVD drive or an I/O port for removable storage media (such as a USB flash drive).

3. Go to a browser and access the web site of your system supplier or motherboard vendor.

4. Insert the storage medium into the system:
   Windows 10: Connect a USB flash drive to a USB I/O port, or insert a blank CD-DVD disk into the applicable drive.

5. Download the AMD-RAID drivers from the web site to the appropriate removable storage medium.

3 Pre-Installation Steps

NOTE: The steps mentioned here are specific to AMD NDA BIOS based off the AMI BIOS. The steps for Other BIOS Vendors will be different.

3.1 Platform BIOS Settings - Enable RAID

1. Power-on the system.
2. Press ESC to get into the Platform BIOS.
3. Set or configure Advanced -> AMD PBS -> NVMe RAID Mode=Enabled.
4. Set or configure Advanced -> AMD CBS -> FCH Common Options -> SATA Configuration Options -> SATA Controller to Enabled.
5. Set or configure Advanced -> AMD CBS -> FCH Common Options -> SATA Configuration Options -> SATA Mode to RAID.
6. Set or configure the Advanced -> Promontory Common Options -> PT SATA Configuration Options -> PT SATA Port Enable to Enabled.
7. Set or configure the Advanced -> Promontory Common Options -> PT SATA Configuration Options -> PT SATA Mode to RAID.
8. Set or configure the Advanced -> CSM Configuration -> CSM Support -> Enabled.
9. Set or configure the Advanced -> CSM Configuration -> Boot Option Filter to UEFI and Legacy or UEFI Only.
10. Set or configure the Advanced -> CSM Configuration -> Storage -> UEFI.
11. Save and reboot.

4 Create the Bootable Virtual Disk

4.1 RAIDXpert2 Configuration Utility (HII Mode)

1. Power-on the system.
2. Press ESC to get into the Platform BIOS.
3. Select Advanced, RAIDXpert2 Configuration Utility, then press Enter.
4. At the RAIDXpert2 Configuration Utility’s Main Menu, use the arrow keys to select Array Management, then press Enter.
5. Use the arrow keys to select Create Array, then press Enter.
6. Select Select RAID Level, then press Enter.
   a. From the Select RAID Level drop down menu, use the arrow keys to select the desired RAID level, then press Enter.
7. Select the disks with which to create the array:
   a. Use the arrow keys to select Select Physical Disks, then press Enter.
   b. To select individual disks, highlight a disk with the arrow keys and press the Space Bar or Enter. Any number of disks may be selected using this method.
   c. To select all disks, use the arrow keys to select Check All, then press Enter.
   d. Use the arrow keys to select Apply Changes, then press Enter.
8. Select an array size by doing the following:
a. Use the arrow key to select Array Size, then press Enter
b. The Array size will default to the Maximum size allowed by the number of physical disks and RAID level selected. If you want a smaller size Array size, enter the desired value.
c. Press Enter when the desired size is reached.

9. Using the arrow keys to select Read Cache Policy, then press Enter
   a. Select the desired Read Cache Policy, then press Enter

10. Using the arrow keys to select Write Cache Policy, then press Enter
    a. Select the desired Write Cache Policy, then press Enter

11. Use the arrow keys to select Create Array, then press Enter

4.2 UEFI Mode
1. At the system’s Power-On Self-Test (POST) screen, press F7 / F12 / ESC (or similar) to access the UEFI Configuration Utility (aka UEFI Boot Manager).
2. Boot to the EFI Internal shell

   *Note: obtain the rcadm.efi file from your system supplier or motherboard vendor and copy it onto a UEFI flash drive, in the root directory.*

3. Enter fsx: where x is the number of the UEFI Flash Drive.
4. Use rcadm to create the desired Boot Virtual Disk.

Examples:

   *Note: the user may have to press the page up key to see more of the information.*
   a. To Query the devices connected in the system: (Output will display the UEFI version, physical devices and arrays)
      `rcadm.efi -M -qa`
   b. Create a Volume on disk 1 with a size of 80 Gbs and disables Read/Write Cache:
      `rcadm.efi -C -v -d 1 -s 80000 -ca nc`
   c. Create a RAID0 on disks 1, 2 with a size of 100 Gbs and enables Read Cache:
      `rcadm.efi -C -r0 -d 1 2 -s 100000 -ca r`
   d. Create a RAID1 on disks 2, 3 with a max size available and enables Read/Write Cache:
      `rcadm.efi -C -r1 -d 2 3 -ca rw`
   e. Create a RAID10 on disks 1, 2, 3, 4 with a size of 125 Gbs and enables Write Cache:
      `rcadm.efi -C -r10 -d 1 2 3 4 -s 125000 -ca w`
5 Install AMD-RAID Drivers

5.1 Windows: Install AMD-RAID UEFI drivers during Windows OS installation

Install the AMD-RAID UEFI drivers during Windows 10 OS Installation

NOTE: The windows described in this guide are typical. Path names and text can vary, depending on user-designated selections and other parameters.

NOTE: NVMe devices will be listed in the “Where do you want to install Windows?”, do not delete any of the partitions or format the NVMe devices. Doing so will delete the AMD-RAID metadata and the desired RAID level will be deleted. Once the AMD-RAID drivers (rcbottom and rcraid) have been loaded, a valid AMD-RAID Virtual Disk will appear.

1. Power-on the system.
2. Create a bootable array, see Section 3.
3. Insert the Microsoft Windows operating system CD-ROM or DVD into the system’s CD or DVD drive.
4. Boot the system and allow it to access the Microsoft Windows operating system CD-ROM or DVD.
5. At the Windows setup window:
   - Select the language, time and keyboard options
   - Click Next
   - Click Install Now or similar
   - If prompted, select the desired Operating System
   - Click Next
   - Insert the storage medium with the AMD-RAID drivers into the USB port or applicable system drive.
   - Click Browse
   - Navigate to the directory containing the saved AMD-RAID drivers
   - Click OK
   
   NOTE: If the installation has multiple controllers, there will be two or more rcbottom.inf’s listed.
   - Select the first AMD-RAID Bottom Device (rcbottom.inf) driver in the list
   - Click Next
5. At the Load Driver Warning message
   - Click OK
6. At the Select the Driver to install window
   - Click Browse
   - Navigate to the directory containing the saved AMD-RAID drivers
   - Click OK
   - Select the AMD-RAID Controller (rcraid.inf) driver in the list
   - Click Next
   - Select (Check Mark) I Accept the License Terms
   - Click Next
   - Select Custom: Install Windows Only (advanced) or similar
7. Once both drivers have been loaded, a valid Virtual Disk appears:
   - Click Load Drivers
   - Click Browse
Navigate to the directory containing the saved AMD-RAID drivers
Click OK
Select the rccfg.inf driver in the list
Click Next

8. At the Where do you want to install Windows
Click Next

9. Follow the on-screen instructions to complete the installation of the applicable Windows operating system.

10. After the OS is installed, Open Device Manager and verify the following:
   - Expand Storage Controllers: there will be an entry(ies) listed as AMD-RAID Bottom Device
   - Expand Storage Controllers: there will be an entry(ies) listed as AMD-RAID Controller
   - Expand System Devices: there will be an entry(ies) listed as AMD-RAID Config Device

11. Remove the storage medium and Microsoft Windows OS CD-ROM or DVD from the applicable drive(s) or port, proceed to the Windows: Install the AMD RAIDXpert2 Management Suite

6 Install the AMD-RAIDXpert2 Management Suite and Web GUI

6.1 Windows – AMD-RAIDXpert2 Management Suite
Obtain the latest Catalyst executable file from your system supplier or motherboard vendor. Download the file to the system's desktop, execute it and follow the on-screen prompts.

6.1.1 Windows – AMD RAIDXpert2 Management Suite Installation (Manually)
1. Obtain the AMD RAIDXpert2 Management Suite executable file (Setup.exe) from your system supplier or motherboard vendor. Download Setup.exe to the system’s desktop.
2. Install AMD RAIDXpert2 (setup.exe) by typing:
   - Open a command prompt, must be run as Administrator
   - cd C:\User\User_Name\Desktop
   - Setup.exe -i silent

   **NOTE:** for the Web GUI to function correctly, rc_cgi and apache must be running.

3. Turn off Windows Firewall (or unblock during step 2).
4. Click on the RAIDXpert2 Desktop Icon
   Default credentials are:
   - Username – admin
   - Password – admin
   Change the credentials:
   - Create new username
   - Create new password
5. Re-log into the system with the new credentials.