Configuring a RAID Set (TRX40 Series)

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RAID Levels

	RAID 0	RAID 1	RAID 10
Minimum Number of Hard Drives	≥2	2	4
Array Capacity	Number of hard drives * Size of the smallest drive	Size of the smallest drive	(Number of hard drives/2) * Size of the smallest drive
Fault Tolerance	No	Yes	Yes

To configure SATA hard drive(s), follow the steps below:

- A. Install hard drive(s) in your computer.
- B. Configure SATA controller mode in BIOS Setup.
- C. Configure a RAID array in RAID BIOS (Note 1)
- D. Install the SATA RAID/AHCI driver and operating system

Before you begin

- At least two SATA hard drives or SSDs (Note 2) (to ensure optimal performance, it is recommended that you
 use two hard drives with identical model and capacity). (Note 3)
- A Windows setup disk.
- Motherboard driver disk.
- A USB thumb drive.

1-1 Configuring SATA Controllers

A. Installing SATA hard drive(s) in your computer

Install the hard drives/SSDs in the SATA/M.2 connectors on the motherboard. Then connect the power connectors from your power supply to the hard drives.

(Note 1) Skip this step if you do not want to create RAID array on the SATA controller.

(Note 2) An M.2 PCIe SSD cannot be used to set up a RAID set either with an M.2 SATA SSD or a SATA hard drive.

(Note 3) Refer to "Internal Connectors," for the installation notices for the M.2, and SATA connectors.

B. Configuring SATA controller mode in BIOS Setup

Make sure to configure the SATA controller mode correctly in system BIOS Setup. Step:

Turn on your computer and press <Delete> to enter BIOS Setup during the POST (Power-On Self-Test). Under Settings\IO Ports, set SATA Configuration\SATA Mode to RAID (Figure 1). Then save the settings and restart your computer. (If you want to use NVMe PCIe SSDs to configure RAID, make sure to set NVMe RAID mode to Enabled. Then set how the bandwidth of the PCIe slot you use is divided. Save the changes and exit BIOS Setup.)

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Figure 1

C. UEFI RAID Configuration

Step 1:

In BIOS Setup, go to Boot and set CSM Support to Disabled (Figure 2). Save the changes and exit BIOS Setup.

, ///			08/30/2019 13:4
Favorites (F11) Tw	eaker Settings System Info. Boot	Save & Exit	
Boot Option Priorities Boot Option #1 Boot Option #2	USB FLASH DRIVE PMAP UEF: USB FLASH DRIVE PMAP, Partition 1	CPU Frequency 3618.28MHz	BCLK 100.50MHz
Bootup NumLock State Security Option Quiet Boot	On System Enabled	Temperature 47.0 °C	Voltage 1.416 V
Fast Boot	Disabled	Memory	
CSM Support	* Disabled	Frequency 2144.17MHz	Size 8192MB
User Password		Ch A/B Volt 1.200 V	Ch C/D Volt 1.200 V
Secure Boot Preferred Operating Mode	Auto		
		Voltage Chipset Core 1.001 V	+5V 5.010 V
		+12V 12.096 V	
Option Description			
chable card support.	and the second of the second of the second	Excu Mede (62) Const Exe Ed	E6) O-Elash (E8)
	Help (F1)	casy mode (rz) a sinarchan 3 (

Figure 2



The BIOS Setup menus described in this section may differ from the exact settings for your motherboard. The actual BIOS Setup menu options you will see shall depend on the motherboard you have and the BIOS version.

Step 2:

After the system reboot, enter BIOS Setup again. Then enter the **Settings\IO Ports\RAIDXpert2 Configuration Utility** sub-menu (Figure 3).

1		1. All	ADVA					08/30/2019 13.50
	Favorites (F11)	Tweaker	Settings	System Info.				Friday 13.30
Initial D PCIEX1	isplay Output 6_1 Bifurcation		PCIe 1 S Auto	Slot			CPU Frequency	
PCIEX	6_2 Bifurcation		Auto				3615.84MHz	100.44MHz
PCIEX8 Above Onboa	_2 Bifurcation 4G Decoding rd LAN Controller		Auto Disable Enables	-d d			Temperature 54.0 °C	Voltage 1.416 V
USB Co	nfiguration						Memory	
Netwo	k Stack Configuration	0000100-11-10101					Frequency 2142 72MHz	Size 8192MB
 RAIDXp 	ert2 Configuration Utility	incertoine rectosoos					Ch A/B Volt 1.200 V	Ch C/D Volt 1.200 V
							Voltage Chipset Core	
							1.001 V +12V 12.096 V	5.010 V
Option Select	Description to configure RAIDXpert2	controller						
				and al se	Help (F1)	Easy Mode (F2)	Smart Fan S (Fé) Q-Flash (F8)

Figure 3

Step 3:

On the RAIDXpert2 Configuration Utility screen, press <Enter> on Array Management to enter the Create Array screen. Then, select a RAID level (Figure 4). RAID levels supported include RAID 0, RAID 1, and RAID 10 (the selections available depend on the number of the hard drives being installed). Next, press <Enter> on Select Physical Disks to enter the Select Physical Disks screen.



Figure 4

Step 4:

On the Select Physical Disks screen, select the hard drives to be included in the RAID array and set them to Enabled. Next, use the down arrow key to move to Apply Changes and press <Enter> (Figure 5).Then return to the previous screen and set the Array Size, Array Size Unit, Read Cache Policy and Write Cache Policy.

	C.							13:52
Favorites (F		Tweaker	Settings	System Info.				
Select Media Type:			вотн				CPU	
Physical Disk 1:1:0, SATA Physical Disk 1:1:1, SATA	, 1.0 TB, , 1.0 TB,	Ready Ready	Enabl Enabl	ed ed			Frequency 3615.84MHz	BCLK 100,44MHz
Check All Uncheck All							Temperature 47.0 °C	Voltage 1.404 V
Apply Changes							Memory	
							Frequency 2142.72MHz	Size 8192MB
							Ch A/B Volt 1.200 V	Ch C/D Volt 1.200 V
							Voltage	
							Chipset Core 1.001 V	+5V 5.010 V
							+12V 12.096 V	
				Constant of the	Help (E1)	Fasu Mode (E2)	Smart Ean S (E6)	O-Flash (FR)

Figure 5

Step 5:

After setting the capacity, move to Create Array and press <Enter> to begin. (Figure 6)

				08/30/2019 13:53
ADRUS Favorites (F11) Tweaker	Settings System Ir			Hiday 19199
Select RAID Level: Select Physical Disks			CPU Frequency 3615.84MHz	BCLK 100,44MHz
Configure Array Parameters: Array Size: Array Size Unit:	1999287 MB (MegaBytes)		Temperatur 47.0 °C	e Voltage 1.416 V
Select CacheTagSize:	64KB		Memory	
Read Cache Policy: Write Cache Policy:	Read Cache Write Back Cache		Frequency 2142.72MHz	Size 8192MB
Create Array			Ch A/B Volt 1.200 V	Ch C/D Volt 1.200 V
			Voltage Chipset Com	= +5V 5.010 V
			+12V 12.096 V	
Option Description Creates the Array				
SC Back		Help (F1) Easy	Mode (F2) Smart Fan S	(F6) Q-Flash (F8)

Figure 6

After completing, you'll be brought back to the **Array Management** screen. Under **Manage Array Properties** you can see the new RAID volume and information on RAID level, array name, array capacity, etc. (Figure 7)

	AVUA	NCED MODE				08/30/2019 13:54
Favorites (F11) Tweaker	Settings	System Info.				
Select Array:	Array 1	, Volume, 1.9 TB, Normal				
Array Properties					CPU	
Array ID: RAID Level:	1 Volume				Frequency 3615.84MHz	BCLK 100.44MHz
Array Status: Array Capacity:	Normal 1.9 TB				Temperature 47.0 *C	Voltage 1.404 V
Cache Tag Size: Array Policies:	64KB					
Read Cache Policy:	Read C	ache			Memory	
Write Cache Policy:	Write B	lack Cache			Frequency 2142.72MHz	Size 8192MB
View Associated Physical Disks					ch a in vish	
					1.200 V	1.200 V
					Voltage	
					Chipset Core 1.001 V	+5V 5.010 V
					+12V 12.096 V	
Displays the physical disks associated with the	krray.					
		conditional design	Ho (Et)	sy Mode (E2)	Smart Ean S/E6	O-Flash (F8)

Figure 7

Delete RAID Volume

To delete a RAID array, select the array to be deleted on the RAIDXpert2 Configuration Utility\Array Management\Delete Array screen. Press <Enter> on Delete Array to enter the Delete screen. Then set Confirm to Enabled and press <Enter> on Yes (Figure 8).

						US Fri	day 13:
Favorites (F11)	Tweaker	Settings					
Deleting an Array will delete	all of the data available	on it.				CO 11	
Are you sure you want to de	lete the selected Array(s					CPU	
Confirm		Foable	d			3615.84MHz	100.44MH
VES						Temperature	Voltage
Deleting an Array may tal Yes, please wait for the o	ke up to 15 seconds. Afte peration to complete.	er selecting				48.0 C	1.416 V
NO						Memory	
						Frequency 2142.72MHz	Size 8192MB
						Ch A/B Volt 1.200 V	Ch C/D Vo 1.200 V
						Voltage	
						Chipset Core 1.001 V	+5V 5.010 V
						+12V 12.096 V	
			Carlos de Carlos	111-1743	Constants IS 10	6	0.51-1-52

Figure 8

1-2 Installing the SATA RAID/AHCI Driver and Operating System

With the correct BIOS settings, you are ready to install the operating system.

A. Installing Windows

As some operating systems already include SATA RAID/AHCI driver, you do not need to install separate RAID/ AHCI driver during the Windows installation process. After the operating system is installed, we recommend that you install all required drivers from the motherboard driver disk using "Xpress Install" to ensure system performance and compatibility. If the operating system to be installed requires that you provide additional SATA RAID/AHCI driver during the OS installation process, please refer to the steps below:

Step 1:

Copy the Hw10 folder under the \BootDrv folder in the driver disk to your USB thumb drive.

Step 2:

Boot from the Windows setup disk and perform standard OS installation steps. When the screen requesting you to load the driver appears, select **Browse**.

Step 3:

Insert the USB thumb drive and then browse to the location of the driver. The location of the driver is as follows: Windows 64-bit: $Wu10\RAID\x64$

Step 4:

When a screen as shown in Figure 1 appears, select AMD-RAID Bottom Device first and click Next to load the driver. Then select AMD-RAID Controller and click Next to load the driver. Finally, continue the OS installation.

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B. Rebuilding an Array

Rebuilding is the process of restoring data to a hard drive from other drives in the array. Rebuilding applies only to fault-tolerant arrays such as RAID 1 and RAID 10 arrays. To replace the old drive, make sure to use a new drive of equal or greater capacity. The procedures below assume a new drive is added to replace a failed drive to rebuild a RAID 1 array.

While in the operating system, make sure the Chipset and RAID drivers have been installed from the motherboard driver disk. Then double-click the **RAIDXpert2** icon on the desktop to launch the RAID utility.



Step 1:

Enter the login ID and password (default: "admin"), and then click **Submit** to launch **AMD RAIDXpert2**.



Step 3:

On the next screen, select **Assign as Global Spare** and click **Confirm**.



Step 5:

Then rebuild is complete when the **Task State** column shows "COMPLETED."





In the **Disk Devices** section, left-click your mouse twice on the newly-added hard drive.





During the rebuild process, you can select the array that is being built (displayed in red) in the **Active Volumes** section to check the current progress.