AMD RAID Installation Guide

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AMD BIOS RAID Installation Guide 1.

AMD BIOS RAID Installation Guide is an instruction for you to configure RAID functions by using the onboard FastBuild BIOS utility under BIOS environment. After you make a SATA driver diskette, press <F2> or to enter BIOS setup to set the option to RAID mode by following the detailed instruction of the "User Manual" in our support CD or "Quick Installation Guide", then you can start to use the onboard RAID Option ROM Utility to configure RAID.

1.1 Introduction to RAID

The term "RAID" stands for "Redundant Array of Independent Disks", which is a method combining two or more hard disk drives into one logical unit. For optimal performance, please install identical drives of the same model and capacity when creating a RAID set.

RAID 0 (Data Striping)

RAID 0 is called data striping that optimizes two identical hard disk drives to read and write data in parallel, interleaved stacks. It will improve data access and storage since it will double the data transfer rate of a single disk alone while the two hard disks perform the same work as a single drive but at a sustained data transfer rate.



Disk 0

WARNING!!

Although RAID 0 function can improve the access performance, it does not provide any fault tolerance. Hot-Plug any HDDs of the RAID 0 Disk will cause data damage or data loss.

RAID 1 (Data Mirroring)

RAID 1 is called data mirroring that copies and maintains an identical image of data from one drive to a second drive. It provides data protection and increases fault tolerance to the entire system since the disk array management software will direct all applications to the surviving drive as it contains a complete copy of the data in the other drive if one drive fails.



RAID 5 (Block Striping with Distributed Parity)

RAID 5 stripes data and distributes parity information across the physical drives along with the data blocks. This organization increases performance by accessing multiple physical drives simultaneously for each operation, as well as fault tolerance by providing parity data. In the event of a physical drive failure, data can be re-calculated by the RAID system based on the remaining data and the parity information. RAID 5 makes efficient use of hard drives and is the most versatile RAID Level. It works well for file, database, application and web servers.



RAID 10 (Stripe Mirroring)

RAID 0 drives can be mirrored using RAID 1 techniques, resulting in a RAID 10 solution for improved performance plus resiliency. The controller combines the performance of data striping (RAID 0) and the fault tolerance of disk mirroring (RAID 1). Data is striped across multiple drives and duplicated on another set of drives.



1.2 RAID Configurations Precautions

- Please use two new drives if you are creating a RAID 0 (striping) array for performance. It is recommended to use two SATA drives of the same size. If you use two drives of different sizes, the smaller capacity hard disk will be the base storage size for each drive. For example, if one hard disk has an 80GB storage capacity and the other hard disk has 60GB, the maximum storage capacity for the 80GB-drive becomes 60GB, and the total storage capacity for this RAID 0 set is 120GB.
- 2. You may use two new drives, or use an existing drive and a new drive to create a RAID 1 (mirroring) array for data protection (the new drive must be of the same size or larger than the existing drive). If you use two drives of different sizes, the smaller capacity hard disk will be the base storage size. For example, if one hard disk has an 80GB storage capacity and the other hard disk has 60GB, the maximum storage capacity for the RAID 1 set is 60GB.
- 3. Please verify the status of your hard disks before you set up your new RAID array.

WARNING!!

Please backup your data first before you create RAID functions. In the process you create RAID, the system will ask if you want to "Clear Disk Data" or not. It is recommended to select "Yes", and then your future data building will operate under a clean environment.

1.3 Installing Windows[®] 8 / 8 64-bit / 7 / 7 64-bit / VistaTM / VistaTM 64-bit With RAID

Functions

If you want to install Windows[®] 8 / 8 64-bit / 7 / 7 64-bit / VistaTM / VistaTM 64-bit on a RAID disk composed of 2 or more

SATA HDDs with RAID functions, please follow below procedures according to the OS you install.

1.3.1 Installing Windows[®] 8 / 8 64-bit With RAID Functions

If you want to install Windows[®] 8 / 8 64-bit on a RAID disk composed of 2 or more SATA HDDs with RAID functions,

please follow below steps.

<u>Way 1</u>:

STEP 1: Set up UEFI.

- A. Enter UEFI SETUP UTILITY \rightarrow Advanced screen \rightarrow Storage Configuration.
- B. Set the "SATA Mode" option to [RAID].
- C. Click [F10] to save and exit.

STEP 2: Use "RAID Installation Guide" to set RAID configuration.

Before you start to configure RAID function, you need to check this RAID installation guide for proper configuration.

Please refer to the BIOS RAID installation guide part in this document for details.

STEP 3: Make a SATA Driver Diskette. (Please use an USB floppy or a floppy disk.)

STEP 4: Install Windows[®] 8 / 8 64-bit OS on your system.

<u>Way 2</u>:

Use this alternative to speed up Windows[®] 8 boot time.

STEP 1: Set up UEFI.

- A. Enter UEFI SETUP UTILITY \rightarrow Advanced screen \rightarrow Storage Configuration.
- B. Set the "SATA Mode" option to [RAID].
- C. Click [F10] to save and exit.
- D. Click [F11] to enter boot menu and select "Built-in EFI shell".
- E. At the Shell> prompt, enter the command "drvcfg" and click [Enter].

fso	apping table :CDRom - Allas cd18a0b blk0
	PciRoot(0x0)/Pci(0x14,0x1)/Ata(Primary,Master,0x0)/CCR0M(0x0,0x54a,0x15faf0)/HD(1,MBR,0x00000000,0x20,0x7fer
f 51	:Removable HardDisk - Alias hdi280c biki
	PciRoot(0x0)/Fci(0x11,0x0)/\$csi(0x0,0x0)/HD(2,GPT,c61f86aa-23a2-44e0-a582-0fd06e1f64cb,0x96600,0x31800)
fs2	:Removable HandDisk - Allas hdi4c0b blk2
	PcIRoot(0x0)/PcI(0x12,0x2)/USB(0x2,0x0)/HD(1,MBR,0xc3072e18,0x1f80,0x3b5e080)
b1k0	:CDRom - Alias cd18a0b fs0
b]k1	PciRoot(0x0)/Pci(0x14,0x1)/Ata(Primary,Master,0x0)/CDROM(0x0,0x54a,0x15faf0)/HD(1,MER,0x00000000,0x20,0x7fe) :Removable HardDisk - Alias hdi2a0c fs1
	PclRoot(0x0)/Pcl(0x11,0x0)/Scs1(0x0,0x0)/HD(2,GPT,c61f86aa-23a2-44e0-a582-0fd06e1f64cb,0x96800,0x31800)
b1k2	:Removable HardDisk - Alias hd14c0b fs2
	PciRoot(0x0)/Pci(0x12,0x2)/USB(0x2,0x0)/HD(1,MBR,0xc3072e18,0x1f80,0x3b9e080)
b1k3	:CDRom - Alias (null)
	PclRoot(0x0)/Pcl(0x14,0x1)/Ata(Primary,Master,0x0)/CDROM(0x0,0x54a,0x15faf0)
b1k4	:BlockDevice - Allas (null)
	PciRoot(0x0)/Pci(0x14,0x1)/Ata(Primary,Haster,0x0)
b1k5	:Removable HardDisk - Alias (null)
	PclRost(0x0)/Pcl(0x11,0x0)/Scsl(0x0,0x0)/HD(1,GPT,d2991ea3-db48-4a1e-bc1a-2e5c378e85a4,0x800,0x96000)
b1k6	:Removable HardDisk - Alias (null)
	PciRoot(0x0)/Pci(0x11,0x0)/Scsi(0x0,0x0)/HD(3,GPT,5782e194-963e-4e2c-9bc7-77d0130c73dc,0xc8000,0x40000)
b1k7	:Removable HardDisk – Alias (null)
	PciRoot(0x0)/Pci(0x11,0x0)/Scsi(0x0,0x0)/HD(4,GPT,dc7870e7-d1ca-48ad-92ae-6392ba9fec44,0x108000,0xc6f8000)
bike	:Removable BlockDevice - Alias (null)
	PciRoot(0x0)/Pci(0x11,0x0)/Scsi(0x0,0x0)
b1k9	:Removable BlackDevice - Alias (null)
	PclRoot(0x0)/Pcl(0x12,0x2)/USB(0x2,0x0)

F. When the following screen appears, enter "dh [Drv number]" and click [Enter].



G. Enter "drvcfg(space)-s(space)[Drv number](space)[Ctrl number]" and click [Enter] to access RAID Utility.

Press ESC in i seconds to stic startup.nsh. sr, cr- Shell> drvcfg Configurable Components - Drv[54] Ctri[DE] Lang[eng]	er ley na continue,
Shell> dh 4E Handle 4E (72E85598)	
Image (72EB2E40) File:SBDXE	
ParentHandle: 73A7EF18	the second s
SystemTable: 7EE36F18	
DeviceHandle: 73A76B18	and the second
FilePath: FvFile(b7d19491-e55a-470d-8508-	85a5dfa41974)
ImageBase: 74092000 - 74096700	
ImageSize: 4700	- Contraction of the second
CodeType: BS_code	
DataType: BS_data ImageDpath (72EB5418)	and the second
Hardware Device Path for Memory Mapped	
Memory Type (11: 7F463000-7F752FFF)	
Media Device Path for PING FV	
AsStr: 'MemoryMapped(0xb,0x7f463000,0x7f752fff)	/FvFile(b7d19491-e55a-470d-8508-85a5dfad
843DC720-AB1E-42CB-9357-8A0078F35618 (74095728)	
8D12E231-C667-4FD1-98F2-2449A7E7B2E5 (74095740)	
38321DBA-4FE0-4E17-8AEC-413055EAEDC1 (74095AA0)	and the second
Shell> drvcfg -s 54 DE.	

H. Enter [Logical Drive Main Menu] to set up RAID Drive.



Choose [Logical Drive Create Menu] to create a RAID Drive.



J. Choose [Usable Physical Drive List] and select the hard drives to be included in the RAID array.

Click [Space] on keyboard to toggle checkbox. Then choose [Basic Setting].



K. Select your desired RAID Level in "Raid Mode" and enter a volume name in "Ld name".

Click [Enter] to confirm the selection.

L. Choose [Ld Size setting] and click [Enter] three times.

Raid Mode	:	<raid 0=""></raid>
Stripe Block (KB)	:	<64>
Setcor Size (Bytes	;):	<512>
Initialization	:	<fast></fast>
Gigabyte Boundary	:	<enable></enable>
Read Policy	:	<read ahead=""></read>
Write Policy	:	<write back=""></write>
Ld Name	:	Volume1
Ld Size Setting		

- M. Click [Esc] to return to the previous page and choose [Logical Drive List Menu] to check the logical drive list.
- N. Enter UEFI SETUP UTILITY → Boot to set the "Fast Boot" option to [Ultra Fast]. Press [F10] to save change

and exit.



STEP 2: Install Windows[®] 8 / 8 64-bit OS on your system.

1.3.2 Installing Windows[®] 7 / 7 64-bit / VistaTM / VistaTM 64-bit With RAID Functions

If you want to install Windows[®] 7 / 7 64-bit / VistaTM / VistaTM 64-bit on a RAID disk composed of 2 or more SATA

HDDs with RAID functions, please follow below steps.

STEP 1: Set up UEFI.

- A. Enter UEFI SETUP UTILITY \rightarrow Advanced screen \rightarrow Storage Configuration.
- B. Set the "SATA Mode" option to [RAID].
- C. Click [F10] to save and exit.

STEP 2: Use "RAID Installation Guide" to set RAID configuration.

Before you start to configure RAID function, you need to check this RAID installation guide for proper configuration.

Please refer to the BIOS RAID installation guide part in this document for details.

STEP 3: Make a SATA Driver Diskette. (Please use an USB floppy or a floppy disk.)

STEP 4: Install Windows[®] 7 / 7 64-bit / Vista[™] / Vista[™] 64-bit OS on your system.

1.4 Create Disk Array

Power on your system. If this is the first time you have booted with the disk drives installed, the AMD onboard RAID Option ROM Utility will display the following screen.

ID	MODE	LD SIZE	TRACK-MAPPING	STATUS
01	1x2 RAID 1	79.00G	9604/255/63	Functional
Port	Device Name			
3 4	WDC WD360GD-00 Maxtor 6B300S0			

The RAID Option ROM includes a Utility with tools to set up your physical drives as RAID logical drives. The RAID Option ROM Utility can perform these functions:

- Monitoring RAID status

- Viewing physical drive assignments
- Secure erasing of all data on physical drives
- Creating RAID logical drives
- Creating multiple logical drives using the same physical drives
- Deleting RAID logical drives
- Diagnosing critical and offline RAID logical drives
- Displaying the IRQ and base address (for system diagnosis)

Press <Ctrl+F> keys, then the RAID Option ROM Utility Main Menu appears.

FastBuild (tm) Utility (c) 2008 Advanced Micro Devices, Inc. [Main Menu]	
View Drive Assignments[1]	
Define LD[2]	
Delete LD[3]	
Controller Configuration[4]	
[Keys Available] Press 14 to Select Option	[ESC] Exit

LD No	RAID Mode	Total Drv	Capacity (GB)	Status
LD 1				
LD 2				
LD 3				
LD 4				
LD 5	(1111)			
LD 6				
LD 7				
LD 8				

Press the arrow keys to highlight a logical drive number you want to define and press <Enter> to select it. The Define

LD No LD 1	RAID Mode RAID 5	Total Drv 3		
Stripe Blo	ck: 64 KB		Fast Init: ON	
-	oundary: ON		Cache Mode: W	riteThru
		Drive Assignment	ts]	
Channel II	Drive M	odel	Capacity (GB)	Assignmen
1:Ma	s ST380013AS		80.03	Y
2 : Ma	s ST380013AS		80.03	Y
3 : Ma	s ST380013AS		80.03	Y
4 : Ma	s ST380013AS		80.03	N

LD Menu for the logical drive number you selected will next appear.

Choose the RAID level you want. In the Define LD Menu section, press the spacebar to cycle through logical drive types, including RAID 0, RAID 1, RAID 5 and RAID 10.

WARNING!!

While you are allowed to use any available RAID level for your bootable logical drive, it is recommended to use RAID 1 for most applications.

Press the arrow key to move to Disk Assignments. Press the spacebar to toggle between N and Y for each available drive. Y means this disk drive will be assigned to the logical drive. Assign the appropriate number of disk drives to your logical drive. Then press <Ctrl-Y> to save your logical drive configuration. You have the option of using all of the disk drive capacity for one logical drive or allocating a portion to a second logical drive.

Press Ctrl-Y to Modify Array Capacity or press any other key to use maximum capacity...

Choose one of the following actions:

- 1. Use the full capacity of the disk drives for a single logical drive: Please read "One Logical Drive" below.
- 2. Split the disk drives among two logical drives: Please read "Two Logical Drives" below.

One Logical Drive

After selecting the logical drive in Disk Assignments as the above-mentioned procedures, press any key (except for <Ctrl-Y>) to use the full portion of the logical drive for one logical drive. Then please follow the steps below:

- 1. Press <Esc> to exit to the Main Menu.
- 2. Press <Esc> again to exit the Utility.
- 3. Press <Y> to restart your computer.

You have successfully created a new RAID logical drive. Please install the operating system to your computer by following the detailed instruction of the "User Manual" in our support CD or "Quick Installation Guide".

Two Logical Drives

After selecting the logical drive in Disk Assignments as the above-mentioned procedures, press <Ctrl-Y> to allocate a portion of the disk drives to the first logical drive. Then please follow the steps below.

Option ROM Uti	lity (c) 2008 Adva	nced Micro Devi [Define LD M		
LD No LD 1 Stripe Blog	RAID Mode RAID 5	Total Drv 3	Capacity(GB) 79.96 Fast Init: 0	N
	[Drives Assign		
Channel ID 1:Mas 2:Ma 3:Ma 4:Ma	Drive Mo ST380013AS Enter array cap		Capacity (GB) 80.03 here: 40	Assignment Y Y Y N
[0-9] Input Ca	apacity [Enter] Save	[Keys Availa [BackSpace] De	ole] ———————————————————————————————————	p/Dn] Page Change

1. Enter the desired capacity (MB) for the first logical drive and press <Enter>. The Define LD Menu displays again.

LD No	RAID Mode	Total Drv	Capacity (GB)	Status
		•		Providence 2
LD 1	RAID 1	2	39.99	Functional
LD 2				
LD 3				
LD 4				
LD 5				
LD 6				
LD 7				
LD 8				

2. Press the up and down arrow keys to select an available logical drive number and press <Enter>.

LD No LD 2	RAID Mode RAID 5		LD Menu] Drv	
Stripe Blo Gigabyte B	ck: 64 KB oundary: ON		Fast Init: ON Cache Mode: W	riteThru
		[Drive Ass	ignments]	
1:Ma 2:Ma 3:Ma	Drive M s ST380013AS s ST380013AS s ST380013AS s ST380013AS	lodel	Capacity (GB) 39.96 39.96 39.96 39.96 80.03	Assignment Y Y N
(†) Up (1) Do	own [ESC] Exit [Spa		ailable] ———————————————————————————————————)n] Page Change

- 3. Choose the RAID level and options for the second logical drive. Note that the disk drives in Channels 1 and 2 reflect smaller capacities because a portion of their capacity belongs to the first logical drive. In this example the disk drives in Channels 3 and 4 are not assigned to a logical drive.
- 4. Press <Ctrl-Y> to save your logical drive configuration.
- 5. Press <Esc> to exit to the Main Menu. Press <Esc> again to exit the Utility.
- 6. Press <Y> to restart the computer.

You have successfully created a new RAID logical drive. Please install the operating system to your computer by following the detailed instruction of the "User Manual" in our support CD or "Quick Installation Guide".

2. AMD Windows RAID Installation Guide

AMD Windows RAID Installation Guide is an instruction for you to configure RAID functions by using RAIDXpert RAID management software under Windows environment. The RAIDXpert software offers local and remote management and monitoring of all AMD SATA logical drives that exist anywhere on a network. Its browser-based GUI provides email notification of all major events/alarms, memory cache management, drive event logging, logical drive maintenance, rebuild, and access to all components in the RAID configuration (server, controller, logical drives, physical drives, and enclosure). RAIDXpert is designed to work with AMD SATA RAID controllers. Other brands of RAID controllers are not supported. Please read this guide carefully and follow the instructions below to configure and manage RAID functions.

2.1 Components of RAIDXpert Installation Software

RAIDXpert installation software will install two major components to your system:

- RAIDXpert RAID management software: The RAIDXpert software installs on the PC with the AMD SATA RAID Controller (the "Host PC").
- Java Runtime Environment (in a private folder): The RAIDXpert installation program installs a private JRE in folder _jvm under the same directory where RAIDXpert is installed. RAIDXpert uses this private JRE to avoid incompatibility issues with any other JREs that may be present on your system.

2.2 Browser Support

On the Host PC with the AMD Controller, where you install RAIDXpert, you must have one of the following browsers: Internet Explorer 6.0, Mozilla Suite 1.7, Mozilla Firefox 1.0, or Netscape Navigator 7.1.

If you do not have one of the above browsers, install the browser first and make it the default browser. Then install RAIDXpert. You must use one of the browsers listed above on your networked PC in order to access RAIDXpert over the network.

2.3 Installing RAIDXpert

Follow these steps to install RAIDXpert on your Windows-based PC or Server.

- 1. Boot the PC or server, launch Windows, and log in as the Administrator. If the computer is already running, exit all programs. If you are not logged in as the Administrator, log out, then log in again as the Administrator.
- 2. Insert the software CD into your CD-ROM drive.
- 3. Double-click the Install CD's icon to open it.
- 4. Double-click the Installer icon to launch it (right). The first RAIDXpert installation dialog box appears.
- 5. Follow the prompts in the installation dialog boxes.
- 6. When the first installation screen appears, choose an installer language from the dropdown menu.

Choose 9	Setup Language	X
2	Select the language for the installation from the choices	below.
	English (United States)	
	Chinese (Simplified) Chinese (Traditional) Czech	
	Durish (Vertical States) English (United States) Finnish (United States) Finnish (Ence) German (Germany) Grock Hungarian Halian (Italy) Japanese Korean Norwegian (Bokmal) Polish Portiguese (Brazi) Polish Portiguese (Brazi) Polish Portiguese (Brazi) Spanish (Treditional Sort) Sweitish Thai Turkish	

7. When the Welcome screen appears, click the **Next** button.

RAIDXpert - InstallShield Wize	ard 🔀
	Welcome to the Install5hield Wizard for RAIDXport
	The InstallShieldWizard will instal RAIDMpert on your computer. To continue, click Next.
	K Back Cancel

 When the License Agreement screen appears, click the "I accept the terms of the license agreement" option to proceed with installation. Then click the Next button to continue.

Note:

If you leave the "I do not accept the terms of the license" option selected, the installation will quit when you click Next.

cense Agreement			No.
Please read the following license agreement ca	retully.		100
Advanced Micro Devices, Inc.			
Software License Agreement			
read and agreed to the following terms and con ("Agreement") between you (ether an individua Micro Devices, Inc. ("AMD"). If Licensee does do not install or use this Software or any portion	al or an entity) ("Li not agree to the t	icensee") and lerms of this A ling or using th	Advanced greement,
that may include associated media, printed Sof documentation or any pottion thereof that is ma CD.ROM ("Software"), Licensee agrees to all o	ide available to de	whicad from I	his server or
documentation or any portion thereof that is ma CD-ROM ("Software"), Licensee agrees to all o	ide available to de of the terms of this	whicad from I	his server or <u> P</u> rint
documentation or any portion thereof that is ma CD-ROM ("Software"), Licensee agrees to all o LICENSE	ade available to de of the terms of this	whicad from I	•
documentation or any potion thereof that is ma CD RON ("Software"), Licensee agrees to all USCNES © Laccept the terms of the license agreement	ade available to de of the terms of this	whicad from I	•
decumonitation or any potton thated that is ma CD-ROM ("Software"), Licensee agrees to all upplies of [] accept the terms of the license agreement C] go not accept the terms of the license agreement	ade available to de of the terms of this	whicad from I	•

9. When the Choose Install Folder screen appears, make your selection of a folder for the RAIDXpert applications you are installing. For example, the Windows default folder is: C:\Program Files\AMD\RAIDXpert If you want a different folder, type its location or click the Choose... button and select a new location. Click the Next button when you are finished.

Choose Destination Location Select folder where setup will install files.	
Setup will install RAIDXpert in the following	g folder.
To install to this folder, click Next. To instant another folder.	al to a different folder, click Browse and select
Destination Folder	

10. When the Check HTTP SSL screen appears, you can choose External Security. An explanation follows. External SSL Security – Applies security to all connections involving the Internet or outside your company firewall. Security options are invisible to authorized users. AMD provides a default certificate for the server as well as for internal data communication. However, in some cases it is better to install and verify your own certificate for the webserver. And, if possible, verify your certificate by certificate authority like Verisign or Thwate. See your MIS Administrator for guidance. Click the Next button when you have made your choice.

RAIDXpert - InstallShield Wizard	×
Check HTTP SSL	
RAIDXpert has the ability to be installed with or The setting can be changed at anytime Please read the HAIUXpert User's Manual for a	
🗖 (External Hittp Security)	
Instal Shield -	Cancel

11. When the Ready to Install screen appears, click the **Install** button to continue.

RAIDXpert - InstallShield Wizard	X
Ready to Install the Program The wizard is ready to begin installation.	
Dick Install to begin the installation.	
If you wan't to review or change any of your inst the wizard.	aliztion settinge, click Back. Cick Cancel Io exit
Instal Shibic	Cancel

12. When the Install Complete screen appears, click the **Finish** button.

RAIDXpert - InstallShield Wiz	ard
	InstallShield Wizard Complete Selup has finished instaling RADXpet on your computer.
	o conporte international gran composition your compares.
	KBack Finish Cancel

2.4 Logging into RAIDXpert

Choose RAIDXpert in the Windows Programs menu. Or, log on manually with your browser:

- 1. Launch the Browser.
- 2. In the Browser address field, type the entry explained below.

If you did not choose the External Security option during RAIDXpert installation, use the Regular connection.

If you chose the External Security option during RAIDXpert installation, use the Secure connection.

2.5 Regular Connection

RAIDXpert us	es an HTTP	connection .	 http://

Together, your entry looks like this:

http://127.0.0.1:25902/ati or http://localhost:25902/ati

2.6 Secure Connection

RAIDXpert uses a secure HTTP connectionhttps://

Together, your entry looks like this:

https://127.0.0.1:8443/amd or https://localhost:8443/amd

Note that the IP address shown above applies to a log-in at the Host PC. When you log in over a network, enter the Host PC's actual IP address or hostname.

Press the **Enter** key. Then, when the login screen appears, type **admin** in the Login ID field. Type **admin** again in the Password field. The RAIDXpert login and password are case sensitive.



Click the **Sign in** button. After sign-in, the RAIDXpert opening screen appears.



2.7 Creating a New Logical Drive

A logical drive is a collection of physical drives in a RAID. To create a new logical drive:

- 1. Click Logical Drive View in Tree View.
- 2. Click the Create tab in Management View. The Select RAID Level screen appears.
- 3. Select the option beside the RAID level you want for your logical drive. RAIDXpert displays the RAID levels you can use with the available physical drives.



4. In the Select Drive Type screen, click the following option:

• Free Drives – Select all Free (unassigned) physical drives

The Select Drives screen appears.

Select Drive Group
Please select a free drive(s) or one logical drive that has free space.
Selact one of the following groups: © Free Drive(s)
(<< Prev (Next >>)

- 5. Click the **Next** button.
- If you want to split the capacity of your physical drives between two logical drives, enter the capacity for the first logical drive in the Logical Drive Size field. Or, to use the maximum capacity of the physical drives, check the Use Maximum Capacity box.



7. Click the physical drives to select them. Available drives have a black frame. Selected drives have a red frame.

RAID 5 S redundan protectio	riped Parity: Data is striped over 3 or more drives, parity provides cy using less space. Best overall balance of performance, capacity and
Logical C	rive Size 50.0 EE (Use Maximum Capacity)
Please se	lect at least 3 drives for RAID 5.
Contract Drive	an Port 1 - 81.9 GB
Free 81.89 GB	
C Drive	an Port 2 - 81.9 GB
Free 81.89 GB	
Crive	an Port 3 - 81.9 GB
Free 61.89 GB	
Contract Contract	on Port 4 - 81.9 GB
Free 81.89 GB	
Selectr	d Available Assigned Spare Invaid
	<< Prev Next >>)

- 8. Click the **Next** button. The Assign a Name screen appears.
- 9. Enter a name for the logical drive in the field provided.



- 10. Click the **Next** button. The Final Settings screen appears.
- RAID 0, 5, and 10. Choose a Stripe Block Size from the dropdown menu. The choices are 64 and 128 KB. The Write Cache policy is None. You cannot change this setting.
- 12. RAID 0, 1, and 5. Select a Gigabyte Boundary policy from the dropdown menu.
 - **GigaByte Boundary** Rounds the size of the logical drive down to the nearest whole gigabyte. This is the default. For more information.
 - None No Boundary function.
- 13. Select an Initialization policy from the dropdown menu.
 - Fast Initialization Erases the reserve and master boot sectors of the physical drives being added to the logical drive.
 - Full Initialization Erases all sectors of the physical drives being added to the logical drive. RAID 0, 1 and 5 only.
 - None No initialization. This choice is not recommended.

Final Settings		
Confirm your choices. Ma	ke any changes here.	
Name	Logical Drive 1	
RAID Level	RAID 5	
Logical Drive Size	Maximum Capacity	
Stripe Block Size	64 KB	
Write Cache	Write Through	•
Gigabyte Boundary	Gigabyte Boundary	
Initialization	Fast Initialization	
	(<< Prev (Fi	nish

14. Click the **Finish** button. If there are physical drives available, the Select RAID Level screen appears again, where you can create an additional logical drive. Click the **Logical Drive** in Tree View to see all of the information about your new logical drive.

nformation Settings	Migration Rebuild Synchronization Initialization Activate Backup
🛛 Basic Information	
Assigned Name	Logical Drive 1
RAID Level	RAID 5
Capacity	50.00 GB
Status	Functional
Background Activity)de
Graphic View	
Assigned LD 1-01 25.00 GB	7-09 56.89 GB
Crive on Port 2 - 81.9	96 GB
Assigned LD 1-02 25.00 GB	ក់ee 56.87-08
00100 00	
Drive on Port 3 - 81.9	96 GB

Before you can use your new logical drive, you must partition and format the logical drive using your PC's operating system.

2.8 Connecting to RAIDXpert from the Internet

The above instructions cover connections between the Host PC and other PCs using RAIDXpert over your company network. It is also possible to connect to a Host PC from the Internet.

Your MIS Administrator can tell you how to access your network from outside the firewall. Once you are logged onto the network, you can access the Host PC using its IP address.

Please note that only the Host PC can read and write data to the logical drives. However, other PCs can monitor the Host PC from virtually any location.

2.9 Running RAIDXpert without Network Connection

While RAIDXpert was designed to run over a network, you can run RAIDXpert without a network connection but only from the Host PC. Follow this procedure:

- Choose RAIDXpert in the Windows Programs menu.Or choose RAIDXpert in the Linux Applications menu.Your browser opens and displays a "no connection to the Internet is currently available" message.
- 2. Click the Work Offline button.
- In the RAIDXpert login screen, enter your user name and password (if used), then click the Sign in button. A "webpage unavailable while offline" message will display.
- 4. Click the Connect button. A "no connection to the Internet is currently available" message will display.
- 5. Click the Try Again button.

After a few moments, RAIDXpert will display normally in your browser.

3. Installing OS on a HDD Larger Than 2TB

This motherboard is adopting UEFI BIOS that allows Windows[®] OS to be installed on a large size HDD (>2TB). Please follow below procedure to install the operating system.

- Please make sure to use Windows[®] Vista[™] 64-bit (with SP1 or above), Windows[®] 7 64-bit or Windows[®] 8 64-bit.
- Press <F2> or <Delete> at system POST. Set AHCI Mode in UEFI Setup Utility > Advanced > Storage Configuration > SATA Mode.
- 3. Choose the item "UEFI:xxx" to boot in UEFI Setup Utility > Boot > Boot Option #1. ("xxx" is the device which contains your Windows[®] installation files. Normally it is an optical drive.) You can also press <F11> to launch boot menu at system POST and choose the item "UEFI:xxx" to boot.
- 4. Start Windows[®] installation.

4. Installing OS on a HDD Larger Than 2TB in RAID Mode

This motherboard is adopting UEFI BIOS that allows Windows[®] OS to be installed on a large size HDD (>2TB). Please follow below procedure to install the operating system.

- Please make sure to use Windows[®] Vista[™] 64-bit (with SP1 or above), Windows[®] 7 64-bit or Windows[®] 8 64-bit.
- Press <F2> or <Delete> at system POST. Set RAID Mode in UEFI Setup Utility > Advanced > Storage Configuration > SATA Mode.
- Choose onboard RAID 3TB+ unlocker > UEFI Mode For GPT partition. Press <F10> to save the change and exit.
- 4. Press <F11> to enter Boot Menu. Choose UEFI : Built in EFI Shell.



5. Key in drvcfg, for example you will see below:

Drv[4E] Ctrl[B5] Lang[eng]

EFI SNELL	version 2.00 (4.540) uneing mode 1.1.2
	oping table Therovable HandDisk - Alias hdi6a0b biko
180	THE TOY AD THE THE TOY AND THE TOY AND THE TOY AND THE TOY ADD THE
	Acpi(PuPOAOS,0)/Pci(11]0)/Scsi(PuPO,LUNO)/HD(Part1,SigD6EC6815-7301-4072-8090-111 Removable HardDisk - Alies hd18f0b b1k1
181	Acc1(PNPOA03,0)/Pc1(12[2)/Usb(5,0)/HD(Fart1,51g01090574)
	Renovable CDRom - Alles cd16dob blk2
152	
	AcD1(PNP0A03,0)/Pc1(11 0)/Scs1(Pun3,Lun0)/CDR0H(Entry1)
biko	Removable HardDisk - Alles hdi6a0b fs0
	Acpl(PNP0A03,0)/Pcl(1110)/Scsi(Pun0,Lun0)/HD(Part1,SigD6EC8819-7301-4072-8090-1111
b1k1	
	Acp1(PNP0A03,0)/Pc1(12[2)/Usb(5,0)/HD(Part1,SIg01090574)
b1k2	:Removable CDRom - Alias cd16d0b fs2
	Acpl(PNP0A03,0)/Pcl(11[0)/Scsl(Pun3,Lun0)/CDROM(Entru1)
bika	:Removable HardDisk - Alies (null)
	Acpi(PNP0A03.0)/Pci(11 0)/Scsi(Pun0,Lun0)/HD(Part2,Sig5A43455D-9395-4CDD-9230-17C20
bike	
	Acpl(PNP0A03,0)/Pci(11 0)/Scsi(Pun0,Lun0)/HD(Part3,Sig9FE075A9-E22E-4110-00F2-1665E
biks	
	ACD1(PNP0A03,0)/Pc1(11(0)/Scel/Pup3 (upp) (pppp)(5)
DIKE	
	HCD1(PNPOR03.0)/Pc1(11(0)/Scel(0)mod ()
B1K7	
b1x8	
0100	
	ACD1(PhPCAC3,0)/Pc1(12(2)/usb(5,0)
Press a	
Shello	the state is a set of the set of
Conf Leu	
Drvte	El Ctri[BS] Lang (ang)

6. Key in **dh [Drv number]**, for example: key in **dh 4E**.

Press ESC in 1 second Shell> drvCfg	ds to skip startup.nsh , any other key
Configurable Componen	nts
Drv (4E) Ctr1 (85)	Lang [eng]
Shell> dh 4E	
Handle 4E (01797018)	
Image (1788240)	File:PromiseRaidX64
ParentHandle:	1001F18
SystemTable:	6F872F18
DeviceHandle:	1008A98
FilePath:	C468B382-4550-4909-AD57-2496141B3F4A
PdbFileName:	F:\edk104\Sample\Platform\X64\uef1\X
ImageBase:	17FA000 - 1818580
ImageSize:	21580
CodeType:	BS_code
DataType	BS_data
DriverBinding (18	19720)
ComponentName2 (1 Configuration (18	819750)
4C8A2451-C207-40	58-9694-99EA13251341 (017BEF28)
	0-3654-39EH13251341 (0178EF28)

7. And then key in drvcfg -s [Drv number] [Ctrl number] to enter Raid Utility.

For example: key in drvcfg -s 4E B5.



8. Choose Logical Drive Main Menu to set up Raid Drive.



9. Choose Logical Drive Create Menu to create a Raid Drive.

+ Logical	Drive	Main Men	ш
+ Logical	Drive	List Men	u
+ Logical	Drive	Create M	enu
+ Logical + Logical	Drive	Delete M	enu

10. Choose Usable Physical Drive List to select Raid HDD.

+ Usable Physical Dri	ive List	
+ Basic Setting		
- Raid Mode	:	<raid 0=""></raid>
- Stripe Block (KB)		<128>
- Initialization	:	<fast></fast>
- Gigabyte Boundary	:	<1>
- Read Policy	:	<read ahead<="" td=""></read>
- Write Policy	:	<write back<="" td=""></write>
- Ld Name	:	

11. Press Space on keyboard to toggle checkbox.

· Logical Orive Greate Henu		
- Seagate ST310003405V - Seagate ST310003405V - Hitachi HDT721010SLR350	1000.13 GB 1000.13 GB 1000.13 GB	

12. Choose Ld Size setting, and key in the Raid size.

usable Physical Dri	ve List	
Basic Setting Raid Hode Stripe Block (KB) Initialization Gigabyte Boundary Read Policy Hrite Policy Ld Name		<raid 0=""> <128> <fast> <1> <read ahead=""> <write back=""> Asrock</write></read></fast></raid>
+ Ld Size Setting - Ld Max Size - Ld Size (GB)	: 3000.41 GB	Key in Raid size

13. After set up Raid size, please click Start to Create.

+ Logical Drive Creat	e Henu	
+ Usable Physical Dr.	lve List	
 Basic Setting Raid Mode Stripe Block (KB) Initialization Gigabyte Boundary Read Policy Hrite Policy Ld Name 		<raid 0=""> <128> <fast> <none> <read ahead=""> <write back=""> Asrock</write></read></none></fast></raid>
+ Ld Size Setting - Ld Max Size - Ld Size (GB) + Start To Create	: 3000.41 GB :	[3000]

- 14. Press <F10> to exit Utility.
- 15. During reboot, please press <F11> to enter Boot Menu. Choose UEFI: SCSI CD/DVD Drive.

USB :	KingstonDT 101 II 1.00	
UEFI:	KingstonDT 101 II 1.00	
Windo	ws Boot Manager	d a la fatta
UEFI:	SCSI CD/DVD Drive	

* This option only shows on Windows[®] 8 64-bit, 7 64-bit and Vista[™] 64-bit OS.

16. Follow Windows[®] Installation Guide to install OS.

If you install Windows[®] 8 64-bit / 7 64-bit / Vista[™] 64-bit in a large hard disk (ex. Disk volume > 2TB), it may take more time to boot into Windows[®] or install driver/utilities. If you encounter this problem, you will need to following instructions to fix this problem.

Windows[®] Vista[™] 64-bit:

Microsoft® does not provide hotfix for this problem. Below steps are Microsoft® suggested solution:

- A. Disable System Restore.
 - a. Type "systempropertiesprotection" in the Start Menu. Then press "Enter".

Programs	
Systempropertiesprotection	
	QQQ
	Documents
	Pictures
	Music
	Games
	Recent Items
	Computer
	Network
	Connect To
	Control Panel
Search Everywhere	Default Programs
P Search the Internet	Help and Support
systempropertiesprotection	× 🕘 🏫 🕨

b. De-select Local Disks for System Restore. Then Click "Turn System Restore Off" to confirm.

Then Press "Ok".



B. Disable "Volume Shadow Copy" service.

a. Type "computer management" in the Start Menu, then press "Enter".

40 00
QQQ
Documents
Pictures
Music
Games
Recent Items
Computer
Network
Connect To
Control Panel
Default Programs
Help and Support
× • • • •

b. Go to "Services and Applications>Services"; Then double click "Volume Shadow Copy".

Computer Management (Local	O. Services						Actions
🐕 System Tools							Services
D Task Scheduler III Event Viewer	Volume Shadow Copy	Name	Description	Status	Startup Type	Log Oi 🕈	More Actions
 Shared Folders Local Users and Groups Reliability and Performa Device Manager 	Stop the service	Smart Card Removal Po	Allows the s Receives tra		Manual Manual	Local { Local {	Volume Shadow Copy
	Restart the service	Software Licensing	Enables the		Automatic	Netwo	More Actions
	Description:	SSDP Discovery	Discovers n	Started	Manual	Local S	
🤮 Storage	Manages and implements Volume	Superfetch System Event Notificati	Maintains a Monitors sy	Started Started	Automatic Automatic	Local S	
Disk Management	Shadow Copies used for backup and	Tablet PC Input Service	Enables Tab		Automatic	Local :	
Services and Applications	other purposes. If this service is stopped, shadow copies will be	Task Scheduler	Enables a us	Started	Automatic	Local :	
WMI Control	unavailable for backup and the	TCP/IP NetBIOS Helper	Provides su	Started	Automatic	Local :	
and the control	backup may fail. If this service is disabled, any services that explicitly	Telephony	Provides Tel		Manual	Netwo	
	depend on it will fail to start.	🔅 Terminal Services	Allows user	Started	Automatic	Netwo	
		🐘 Terminal Services Confi	Terminal Se		Manual	Local :	
		🔍 Terminal Services User	Allows the r		Manual	Local S	
		🔍 Themes	Provides us	Started	Automatic	Local :	
		强 Thread Ordering Server	Provides or		Manual	Local S	
		Control TPM Base Services	Enables acc		Automatic (D		
		UPnP Device Host	Allows UPn		Manual	Local S	
		Service User Profile Service	This service		Automatic	Local	
		Kirtual Disk	Provides m	Started	Automatic Manual	Local S	
	2.	Q Volume Shadow Copy	Manages an	Started	Manual	Local	
		WebClient	Enables Win		Automatic	Local	
		Windows Audio	Manages au		Automatic	Local	
		Windows Audio Endpoi	Manages au		Automatic	Local S	
		Windows Backup	Provides Wi		Manual	Local S	
		🔍 Windows CardSpace	Securely en		Manual	Local S	
		🥋 Windows Color System	The WcsPlu		Manual	Local S	
		🤹 Windows Connect Now			Manual	Local !	
		Mindour Defender	Commence	Ctartad	Automatic	Lacal	

c. Set "Startup type" to "Disable" then Click "OK".

General	Log On	Recovery	Depender	ncies		
Service r	name:	VSS				
Display n	iame:	Volume Shadow Copy				
Description:		Manages and implements Volume Shadow Copies used for backup and other purposes. If this service				
Path to e C:\Winde		e: em32\vssvc	.exe			
Startup type: Disabled					•	
Help me	configure	e service sta	tup options	<u>s.</u>		
Service s	status:	Stopped				
St	art	Stop		Pause	Resume	
You can from here		he start para	meters that	apply when y	ou start the serv	ice
Start par	ameters:					
Start par	ameters:					

- C. Reboot your system.
- D. After reboot, please start to install motherboard drivers and utilities.

Windows[®] 8 64-bit / 7 64-bit:

- A. Please request the hotfix KB2505454 thru this link: http://support.microsoft.com/kb/2505454/
- B. After installing Windows $^{\ensuremath{\$}}$ 8 64-bit / 7 64-bit, install the hot fix kb2505454.
- (This may take long time; >30 mins.)
- C. Reboot your system. (It may take about 5 mins to boot.)
- D. The Windows $^{\ensuremath{\$}}$ will install this hot fix then reboot by itself.
- E. Please start to install motherboard drivers and utilities.
- 17. Finish.