

NVR-Q67S

Network Video Recorder

Hot-Swappable HDD Tray x 8

2.5" HDD x 1

Gigabit Ethernet x 2

COM x 2, USB2.0 x 4

VGA x 1, DVI-D x 1

Display Port x 1

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Packing List

Before you begin installing your card, please make sure that the following materials have been shipped:

- 1 CD-ROM for 2-port SC300 driver
- 1 DVD-ROM for Manual (in PDF Format) and Drivers
- 1 NVR-Q67S

If any of these items should be missing or damaged, please contact your distributor or sales representative immediately.

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Below Table for China RoHS Requirements

产品中有毒有害物质或元素名称及含量

AAEON Boxer/ Industrial System

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板 及其电子组件	×	○	○	○	○	○
外部信号 连接器及线材	×	○	○	○	○	○
外壳	×	○	○	○	○	○
中央处理器 与内存	×	○	○	○	○	○
硬盘	×	○	○	○	○	○
电源	×	○	○	○	○	○

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在
SJ/T 11363-2006 标准规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出
SJ/T 11363-2006 标准规定的限量要求。

备注:

一、此产品所标示之环保使用期限，系指在一般正常使用状况下。

二、上述部件物质中央处理器、内存、硬盘、电源为选购品。

Chapter

1

**General
Information**

1.1 Introduction

NVR-Q67S adopts the Intel® Core™ i7/ i5 Processor and equips with Intel® Q67 chipset. Moreover, the system memory features 4GB or 8GB DDR3 1333/1066 Hz Non-ECC, Un-buffered DIMM Memory up to 32GB. It deploys two LAN ports that consist of 10/100/1000Base-TX Ethernet RJ-45 ports. NVR-Q67S features desktop and rackmount form factor for network appliance applications.

This NVR-Q67S supports up to eight Hot-Swappable HDD tray and one 2.5" internal System HDD bracket with 500W PSU. Moreover, the flexible expansion interfaces feature one PCI-E[x16], one PCI-E[x4], and two PCI slots. In addition, this model supports two COM ports, and four USB2.0 ports on the rear. Furthermore, the NVR-Q67S can support dual displays with one VGA, one DVI-D, and one DisplayPort™.

1.2 Features

- Intel® Socket 1155 with 2nd Generation Core™ i5/i7 Processors
- Intel® Q67 Chipset
- 4GB or 8GB DDR3 1333/1066 Hz Non-ECC, Un-buffered DIMM Memory Up To 32GB
- 10/100/1000Base-TX Ethernet x 2
- Hot-Swappable HDD tray x 8 + 2.5" internal System HDD Bracket x 1 with 500W PSU
- Onboard COM x 2
- USB2.0 x 4
- VGA x 1, DVI-D x 1, Display Port x 1
- Audio Line-out, Line-in, Mic-in
- RAID 0/1/5/10 support
- Windows® 7 Embedded Standard (optional)

1.3 Specifications

System

● CPU	Intel® Socket 1155 with 2nd Generation Core™ i5/i7 Processors
● Chipset	Intel Q67
● System Memory	4GB (for i5) or 8GB (for i7) DDR3 1333/1066 Hz Non-ECC, Un-buffered Memory, support upto 32G
● LCD/CRT Controller	Integrated in Processor, shared memory up to 256MB
● Ethernet	10/100/1000Base-TX, RJ-45 x 2
● Rear I/O Port	USB2.0 x 4 Audio Line-out, Line-in, Mic-in x 1 VGA x 1 DVI x 1 Display Port x 1 PS/2 x 1(Keyboard + Mouse)
● Storage	8 x Hot-Swappable SATA Hard Disk tray + 1 x 2.5" internal System HDD bracket
● Expansion Slot	PCIe [x16] x 1, PCIe [x4] x 1, PCI x 2
● RAID Support	0/1/5/10

Mechanical

● Front Panel	Power Button x 1, Reset Button x 1, HDD light Indicator
● Dimension	25.98" x 16.93" x 3.46" (660mm x 430mm x 88mm)
● Gross Weight	26.4 lb (12 Kg)
● Net Weight	24.2 lb (11 Kg)

Environmental

● Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)
● Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)
● Storage Humidity	10%~80% @40°C; non-condensing

Power Supply

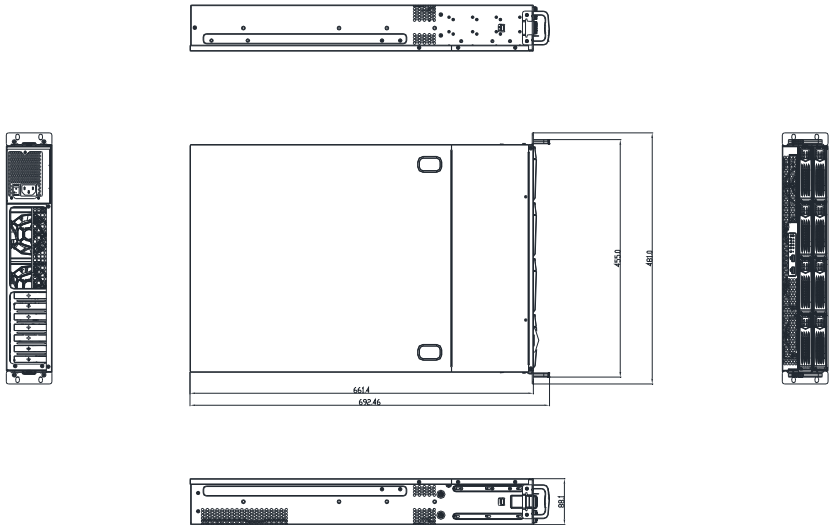
● DC Output	500W ATX PS2
● AC Input Voltage Range	115-240Vac, 47-63Hz, 8-4A

Chapter

2

**Hardware
Installation**

2.1 Mechanical Drawing



2.2 Open The Top Cover

Step 1 : Unfasten te two screws on the back side and one screw on both left and right sides



Step 2 : Thumb finger touch downward and then push back the rear back cover



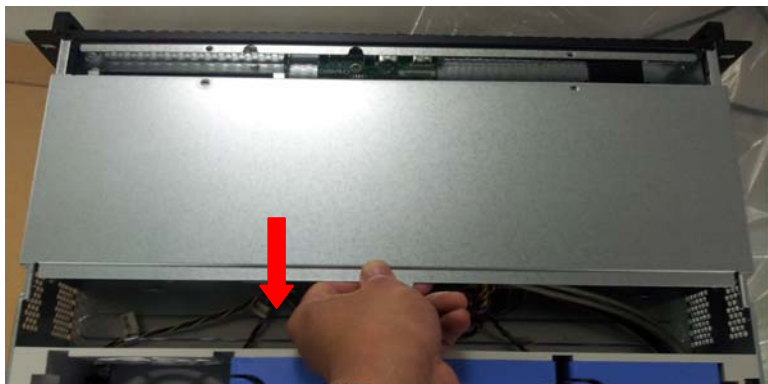
Step3: Release two screws on the both left and right sides



Step 4: Unfasten the two screws on the top side



Step 5: Pull out the front top cover



2.3 Installing the 2.5" Hard Disk Drive

Step 1: Align the left side plastic bracket to the one mounting hole on the HDD



Step 2: Align one mounting hole on the right side to gauge bracket pin by sloping



Step 3: Put HDD w/bracket down on the left side by sloping down until it fixed



2.4 Installing the 3.5" Hard Disk Drive

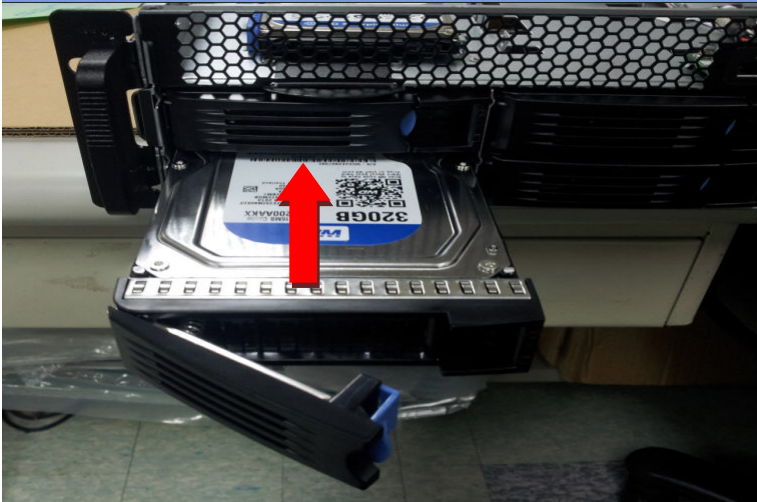
Step1: Insert the Hard Disk Drive to the tray



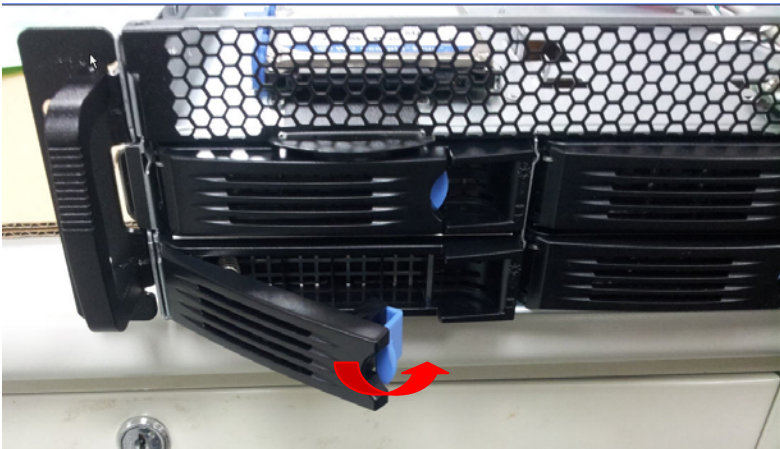
Step2: Fasten the two screws on the both sides to fix the HDD tray



Step 3: Slide the tray into HDD bay



Step 4: Push the lever to latch HDD tray



Chapter

3

**Driver
Installation**

The NVR-Q67S comes with an AutoRun DVD-ROM that contains all drivers and utilities that can help you to install the driver automatically.

Insert the driver DVD, the driver DVD-title will auto start and show the installation guide. If not, please follow the sequence below to install the drivers.

Follow the sequence below to install the drivers:

- Step 1 – Install Chipset Driver
- Step 2 – Install VGA Driver
- Step 3 – Install LAN Driver
- Step 4 – Install Audio Driver
- Step 5 – Install TPM Driver
- Step 7 – Install ME Driver
- Step 8 – Install RAID Driver

Please read instructions below for further detailed installations.

3.1 Installation

Insert the NVR-Q67S DVD-ROM into the DVD -ROM drive and install the drivers from Step 1 to Step 8 in order.

Step 1 – Install Chipset Driver

1. Click on the **Chipset** folder and double click on the **Setup.exe** file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 2 – Install VGA Driver

1. Click on the **VGA** folder and select the OS your system is
2. Double click on the **Setup.exe** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 3 – Install LAN Driver

For Intel LAN Chip

1. Click on the **LAN** folder and select the **Intel** folder
2. Double click on the **Autorun.exe** file
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

For Realtek LAN Chip

1. Click on the **LAN** folder and select the **Realtek** folder
2. Select the OS folder your system is and double click on the **setup.exe** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 4 – Install Audio Driver

1. Click on the **Audio** folder and double click on the **SETUP.exe** file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 5 – Install TPM Driver

1. Click on the **TPM** folder and double click on the **Setup.exe** file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 6 – Install USB Driver

1. Click on the **USB3** folder and double click on the **setup.exe** file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 7 – Install ME Driver

1. Click on the **ME** folder and double click on the **Setup.exe** file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 8 – Install RAID Driver

When you install the RAID driver, you have to install **asmedia** and **IRST** drivers

1. Click on the **Raid** folder and select the folder of **Asmedia**
2. Double click on the **setup.exe** file
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically
5. After installing Asmedia driver, and then click on the folder of **IRST**
6. Select the folder of **Driver** folder
7. Double click on the **setup.exe** file
8. Follow the instructions that the window shows
9. The system will help you install the driver automatically
















































Chapter

4

I/O Information

4.1 I/O Address Map

Input/output (IO)	
[00000000 - 0000000F]	Direct memory access controller
[00000000 - 000000CF]	PCI bus
[00000010 - 0000001F]	Motherboard resources
[00000020 - 00000021]	Programmable interrupt controller
[00000022 - 0000003F]	Motherboard resources
[00000040 - 00000043]	System timer
[00000044 - 0000005F]	Motherboard resources
[00000061 - 00000061]	System speaker
[00000063 - 00000063]	Motherboard resources
[00000065 - 00000065]	Motherboard resources
[00000067 - 0000006F]	Motherboard resources
[00000070 - 00000071]	System CMOS/real time clock
[00000072 - 0000007F]	Motherboard resources
[00000080 - 00000080]	Motherboard resources
[00000081 - 00000083]	Direct memory access controller
[00000084 - 00000086]	Motherboard resources
[00000087 - 00000087]	Direct memory access controller
[00000088 - 00000088]	Motherboard resources
[00000089 - 0000008B]	Direct memory access controller
[0000008C - 0000008E]	Motherboard resources
[0000008F - 0000008F]	Direct memory access controller
[00000090 - 0000009F]	Motherboard resources
[000000A0 - 000000A1]	Programmable interrupt controller
[000000A2 - 000000BF]	Motherboard resources
[000000C0 - 000000DF]	Direct memory access controller
[000000E0 - 000000EF]	Motherboard resources
[000000F0 - 000000FF]	Numeric data processor
[00000290 - 0000029F]	Motherboard resources
[000002F8 - 000002FF]	Communications Port (COM2)
[00000378 - 0000037F]	Printer Port (LPT1)
[000003B0 - 000003BB]	Intel(R) HD Graphics
[000003C0 - 000003DF]	Intel(R) HD Graphics
[000003F8 - 000003FF]	Communications Port (COM1)
[00000400 - 00000453]	System board
[00000454 - 00000457]	Motherboard resources
[00000458 - 0000047F]	System board
[000004D0 - 000004D1]	Motherboard resources
[00000500 - 0000057F]	System board
[00000D00 - 0000FFFF]	PCI bus
[00001180 - 0000119F]	System board
[0000D000 - 0000D0FF]	Realtek PCIe GBE Family Controller
[0000D000 - 0000DFFF]	Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 7 - 1C1C
[0000E000 - 0000E00F]	Standard Dual Channel PCI IDE Controller
[0000E000 - 0000EFFF]	Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 5 - 1C18
[0000E010 - 0000E013]	Standard Dual Channel PCI IDE Controller
[0000E020 - 0000E027]	Standard Dual Channel PCI IDE Controller
[0000E030 - 0000E033]	Standard Dual Channel PCI IDE Controller
[0000E040 - 0000E047]	Standard Dual Channel PCI IDE Controller

















































	[00000090 - 0000009F]	Motherboard resources
	[000000A0 - 000000A1]	Programmable interrupt controller
	[000000A2 - 000000BF]	Motherboard resources
	[000000C0 - 000000DF]	Direct memory access controller
	[000000E0 - 000000EF]	Motherboard resources
	[000000F0 - 000000FF]	Numeric data processor
	[00000290 - 0000029F]	Motherboard resources
	[000002F8 - 000002FF]	Communications Port (COM2)
	[00000378 - 0000037F]	Printer Port (LPT1)
	[000003B0 - 000003BB]	Intel(R) HD Graphics
	[000003C0 - 000003DF]	Intel(R) HD Graphics
	[000003F8 - 000003FF]	Communications Port (COM1)
	[00000400 - 00000453]	System board
	[00000454 - 00000457]	Motherboard resources
	[00000458 - 0000047F]	System board
	[000004D0 - 000004D1]	Motherboard resources
	[00000500 - 0000057F]	System board
	[00000D00 - 0000FFFF]	PCI bus
	[00001180 - 0000119F]	System board
	[0000D000 - 0000D0FF]	Realtek PCIe GBE Family Controller
	[0000D000 - 0000DFFF]	Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 7 - 1C1C
	[0000E000 - 0000E00F]	Standard Dual Channel PCI IDE Controller
	[0000E000 - 0000EFFF]	Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 5 - 1C18
	[0000E010 - 0000E013]	Standard Dual Channel PCI IDE Controller
	[0000E020 - 0000E027]	Standard Dual Channel PCI IDE Controller
	[0000E030 - 0000E033]	Standard Dual Channel PCI IDE Controller
	[0000E040 - 0000E047]	Standard Dual Channel PCI IDE Controller
	[0000F000 - 0000F03F]	Intel(R) HD Graphics
	[0000F040 - 0000F05F]	Intel(R) 6 Series/C200 Series Chipset Family SMBus Controller - 1C22
	[0000F080 - 0000F08F]	Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C08
	[0000F090 - 0000F09F]	Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C08
	[0000F0A0 - 0000F0A3]	Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C08
	[0000F0B0 - 0000F0B7]	Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C08
	[0000F0C0 - 0000F0C3]	Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C08
	[0000F0D0 - 0000F0D7]	Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C08
	[0000F0E0 - 0000F0EF]	Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C00
	[0000F0F0 - 0000F0FF]	Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C00
	[0000F100 - 0000F103]	Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C00
	[0000F110 - 0000F117]	Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C00
	[0000F120 - 0000F123]	Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C00
	[0000F130 - 0000F137]	Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C00
	[0000F140 - 0000F147]	Intel(R) Active Management Technology - SOL (COM3)
	[0000F150 - 0000F15F]	Standard Dual Channel PCI IDE Controller
	[0000F160 - 0000F163]	Standard Dual Channel PCI IDE Controller
	[0000F170 - 0000F177]	Standard Dual Channel PCI IDE Controller
	[0000F180 - 0000F183]	Standard Dual Channel PCI IDE Controller
	[0000F190 - 0000F197]	Standard Dual Channel PCI IDE Controller






































4.2 1st MB Memory Address Map

Memory Address Range	Hardware Component
[000A0000 - 000BFFFF]	Intel(R) HD Graphics
[000A0000 - 000BFFFF]	PCI bus
[000C8000 - 000DFFFF]	PCI bus
[BFA00000 - FFFFFFFF]	PCI bus
[C0000000 - CFFFFFFF]	Intel(R) HD Graphics
[D0000000 - D0003FFF]	Realtek PCIe GBE Family Controller
[D0000000 - D00FFFFF]	Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 7 - 1C1C
[D0004000 - D0004FFF]	Realtek PCIe GBE Family Controller
[E0000000 - E3FFFFFF]	System board
[FE000000 - FE3FFFFFF]	Intel(R) HD Graphics
[FE400000 - FE4001FF]	Standard Dual Channel PCI IDE Controller
[FE400000 - FE4FFFFFF]	Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 5 - 1C18
[FE500000 - FE51FFFF]	Intel(R) 82579LM Gigabit Network Connection
[FE520000 - FE523FFF]	High Definition Audio Controller
[FE524000 - FE5240FF]	Intel(R) 6 Series/C200 Series Chipset Family SMBus Controller - 1C22
[FE525000 - FE5253FF]	Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C26
[FE526000 - FE5263FF]	Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C2D
[FE527000 - FE527FFF]	Intel(R) 82579LM Gigabit Network Connection
[FE528000 - FE528FFF]	Intel(R) Active Management Technology - SOL (COM3)
[FE529000 - FE52900F]	Intel(R) Management Engine Interface
[FEC00000 - FECFFFFFF]	System board
[FED00000 - FED003FF]	High precision event timer
[FED08000 - FED08FFF]	System board
[FED10000 - FED19FFF]	System board
[FED1C000 - FED1FFFF]	System board
[FED20000 - FED3FFFF]	System board
[FED90000 - FED93FFF]	System board
[FEE00000 - FEE0FFFF]	System board
[FF000000 - FFFFFFFF]	System board


4.3 IRQ Mapping Chart

Interrupt request (IRQ)	
(ISA) 0x00000000 (00)	System timer
(ISA) 0x00000003 (03)	Communications Port (COM2)
(ISA) 0x00000004 (04)	Communications Port (COM1)
(ISA) 0x00000008 (08)	System CMOS/real time clock
(ISA) 0x0000000D (13)	Numeric data processor
(ISA) 0x00000051 (81)	Microsoft ACPI-Compliant System
(ISA) 0x00000052 (82)	Microsoft ACPI-Compliant System
(ISA) 0x00000053 (83)	Microsoft ACPI-Compliant System
(ISA) 0x00000054 (84)	Microsoft ACPI-Compliant System
(ISA) 0x00000055 (85)	Microsoft ACPI-Compliant System
(ISA) 0x00000056 (86)	Microsoft ACPI-Compliant System
(ISA) 0x00000057 (87)	Microsoft ACPI-Compliant System
(ISA) 0x00000058 (88)	Microsoft ACPI-Compliant System
(ISA) 0x00000059 (89)	Microsoft ACPI-Compliant System
(ISA) 0x0000005A (90)	Microsoft ACPI-Compliant System
(ISA) 0x0000005B (91)	Microsoft ACPI-Compliant System
(ISA) 0x0000005C (92)	Microsoft ACPI-Compliant System
(ISA) 0x0000005D (93)	Microsoft ACPI-Compliant System
(ISA) 0x0000005E (94)	Microsoft ACPI-Compliant System
(ISA) 0x0000005F (95)	Microsoft ACPI-Compliant System
(ISA) 0x00000060 (96)	Microsoft ACPI-Compliant System
(ISA) 0x00000061 (97)	Microsoft ACPI-Compliant System
(ISA) 0x00000062 (98)	Microsoft ACPI-Compliant System
(ISA) 0x00000063 (99)	Microsoft ACPI-Compliant System
(ISA) 0x00000064 (100)	Microsoft ACPI-Compliant System
(ISA) 0x00000065 (101)	Microsoft ACPI-Compliant System
(ISA) 0x00000066 (102)	Microsoft ACPI-Compliant System
(ISA) 0x00000067 (103)	Microsoft ACPI-Compliant System
(ISA) 0x00000068 (104)	Microsoft ACPI-Compliant System
(ISA) 0x00000069 (105)	Microsoft ACPI-Compliant System
(ISA) 0x0000006A (106)	Microsoft ACPI-Compliant System
(ISA) 0x0000006B (107)	Microsoft ACPI-Compliant System
(ISA) 0x0000006C (108)	Microsoft ACPI-Compliant System
(ISA) 0x0000006D (109)	Microsoft ACPI-Compliant System
(ISA) 0x0000006E (110)	Microsoft ACPI-Compliant System
(ISA) 0x0000006F (111)	Microsoft ACPI-Compliant System
(ISA) 0x00000070 (112)	Microsoft ACPI-Compliant System
(ISA) 0x00000071 (113)	Microsoft ACPI-Compliant System
(ISA) 0x00000072 (114)	Microsoft ACPI-Compliant System
(ISA) 0x00000073 (115)	Microsoft ACPI-Compliant System
(ISA) 0x00000074 (116)	Microsoft ACPI-Compliant System
(ISA) 0x00000075 (117)	Microsoft ACPI-Compliant System
(ISA) 0x00000076 (118)	Microsoft ACPI-Compliant System
(ISA) 0x00000077 (119)	Microsoft ACPI-Compliant System
(ISA) 0x00000078 (120)	Microsoft ACPI-Compliant System
(ISA) 0x00000079 (121)	Microsoft ACPI-Compliant System
(ISA) 0x0000007A (122)	Microsoft ACPI-Compliant System
(ISA) 0x0000007B (123)	Microsoft ACPI-Compliant System

	(ISA) 0x0000007C (124)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007D (125)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007E (126)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007F (127)	Microsoft ACPI-Compliant System
	(ISA) 0x00000080 (128)	Microsoft ACPI-Compliant System
	(ISA) 0x00000081 (129)	Microsoft ACPI-Compliant System
	(ISA) 0x00000082 (130)	Microsoft ACPI-Compliant System
	(ISA) 0x00000083 (131)	Microsoft ACPI-Compliant System
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	(ISA) 0x000000A4 (164)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A5 (165)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A6 (166)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A7 (167)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A8 (168)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A9 (169)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AA (170)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AB (171)	Microsoft ACPI-Compliant System

	(ISA) 0x000000AC (172)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AD (173)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AE (174)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AF (175)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B0 (176)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B1 (177)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B2 (178)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B3 (179)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B4 (180)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B5 (181)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B6 (182)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B7 (183)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B8 (184)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B9 (185)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BA (186)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BB (187)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BC (188)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BD (189)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BE (190)	Microsoft ACPI-Compliant System
	(PCI) 0x0000000A (10)	Intel(R) 6 Series/C200 Series Chipset Family SMBus Controller - 1C22
	(PCI) 0x00000010 (16)	Standard Dual Channel PCI IDE Controller
	(PCI) 0x00000010 (16)	Xeon E3-1200/2nd Generation Intel(R) Core(TM) Processor Family PCI Express Root Port - 0101
	(PCI) 0x00000011 (17)	Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 1 - 1C10
	(PCI) 0x00000011 (17)	Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 5 - 1C18
	(PCI) 0x00000011 (17)	Intel(R) Active Management Technology - SOL (COM3)
	(PCI) 0x00000012 (18)	Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 7 - 1C1C
	(PCI) 0x00000013 (19)	Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 8 - 1C1E
	(PCI) 0x00000013 (19)	Standard Dual Channel PCI IDE Controller
	(PCI) 0x00000014 (20)	Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C00
	(PCI) 0x00000014 (20)	Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C08
	(PCI) 0x00000015 (21)	Intel(R) Management Engine Interface
	(PCI) 0x00000016 (22)	High Definition Audio Controller
	(PCI) 0x00000017 (23)	Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C2D
	(PCI) 0x00000017 (23)	Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C2E
	(PCI) 0xFFFFFFF4 (-4)	Realtek PCIe GBE Family Controller
	(PCI) 0xFFFFFFF3 (-3)	Intel(R) 82579LM Gigabit Network Connection
	(PCI) 0xFFFFFFF2 (-2)	Intel(R) HD Graphics

4.4 DMA Channel Assignments

Direct memory access (DMA)	
	4 Direct memory access controller