Wiwynn™ SV320

Technical User Manual

Version 1.2

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System Specification

Form Factor	2U Rack
Processor	Intel® Xeon® processors E5-2600 series and E5-2600 v2 series
Memory	Up to 256GB (16 DIMM slots): 2GB/4GB/8GB/16GB DDR3 up to 1600MT/s
Chipset	Intel® C600 series
IO Expansion	Five PCIe G3 Slots : One x16 slot (x8 signals) half-length, half-height Three x8 Slot (x8 signals) half-length, half-height One x8 slot (x4 signals) half-length, half-height
Internal Storage	Hot-plug Hard Drive Options: 3.5" SAS SSD, SATA SSD, SAS (10K, 15K), nearline SAS (7.2K), SATA (7.2K)
Network	Port Q'ty : (3) 1GbE , (1) 1GeE management port Controller : Intel I350-AM4
Video	Emulex Pilot 3 with 128 MB DDR3 RAM Support
System Dimensions	88 (H) * 430 (W) * 660(D) (mm)
Weight (min./max.)	26.17kg

System Tour

External and Internal Structure

Front Panel

The illustration below shows the system front panel.

Item	Component
1	Power button/indicator
2	Twelve 3.5-inch HDD drive bays (HDD#1 to HDD#12)
3	USB port
4	HDD fault LED
5	HDD activity LED
6	HDD carrier latch
7	System normal status
8	System status LED
9	System caution status

System Status LED Indicator Status

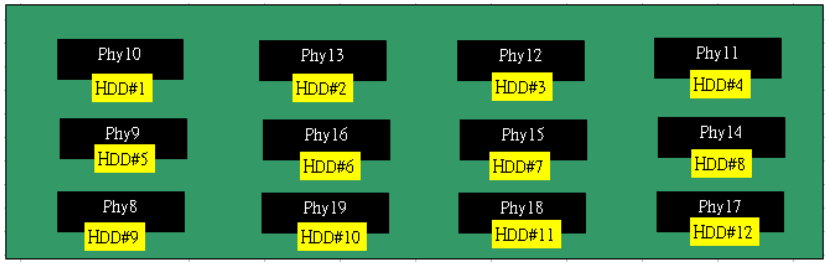
LED	Color	Description
	Off Amber + Off Blue	Power Off
	Solid Amber + Blinking Blue	Pre - AC*
	Solid Amber + Solid Blue	iBMC ready
	Solid Amber	All System Non-critical Event
		Fan Non-critical Event
		Temp Non-critical Event
		Voltage Non-critical Event
		MEM ECC Fault
		CPU Thermal trip Shutdown
		All System Critical Event
	Solid Blue	System Booted & Ready

Note: *30 Second BMC Initialization when AC is applied to the server. Power button of front panel is disabled until BMC Initialization is complete.

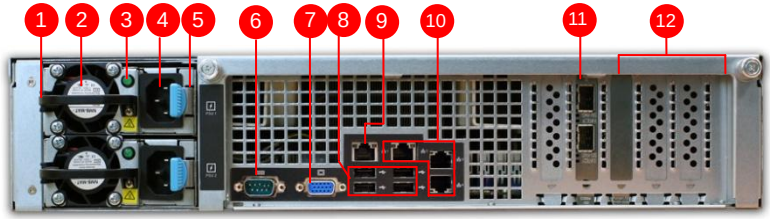
HDD Carrier LED Indicator Status

LED	Color	HDD Status
	White Off + Red Off	Slot Empty
	White Off or Blinking when Active + Red Off	Drive Online
	White Off or On when Active + Red Blinking	Locate
	White off or Blinking when Active + Red On	Drive Rebuild
	White Off + Red On	Array Device Failed

SAS Backplane Location Map



Rear Panel



No.	Component
1	Power supply module handle
2	Power supply module
3	Power supply module indicator
4	Power cable socket (110V-240V ; 50-60Hz; 3-6A)
5	Power supply module release latch
6	Serial port
7	Video port
8	USB 2.0 ports
9	Gigabit/management Ports(RJ45) (10/100/1000 Mbps)
10	Gigabit LAN Port(RJ45) (10/100/1000 Mbps)
11	10G SFP+ LAN Card
12	PCI expansion slots

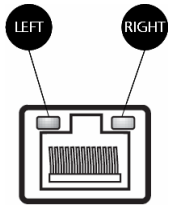
Power Supply (PS) LED Indicator Status

LED	Color State	Status	Description
	Green	Normal	N/A
	Off	Off	No AC power input PSU Protection (OCP,OVP, SCP, Fan Lock…)

Rear Panel UID LED Indicator Status

LED Color State	Status	Description
Off	AC Off	No power; All system down
Off	AC On	BMC ready, but Chassis Identify not issued
Solid Blue	AC On	BMC Initializing
Solid Blue	AC On	Chassis Identifying (BMC ready)

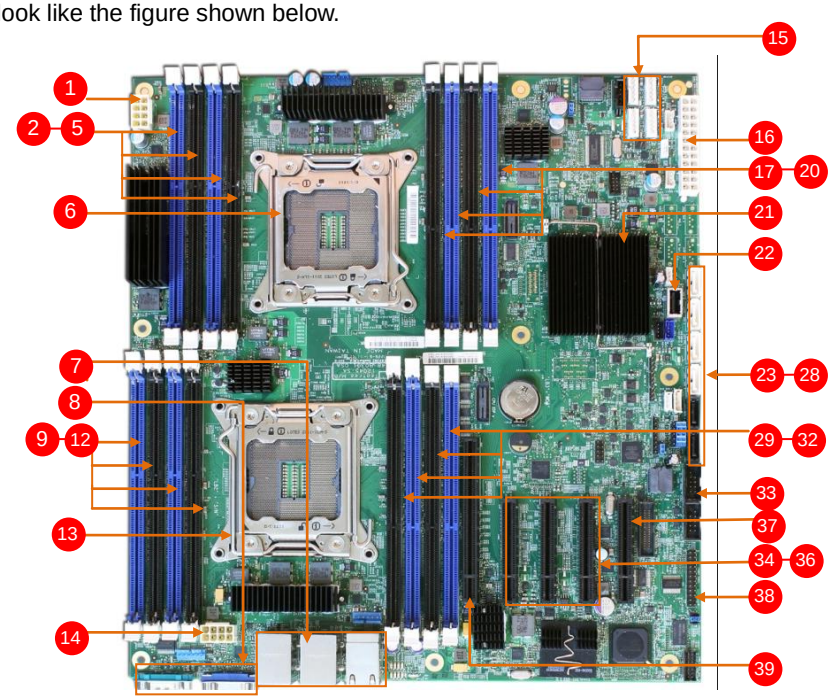
LAN Port LED Indicators



LED indicator	Color state	Description
Green/Amber (Right)	Off	10 Mbps
	Green Solid on	100Mbps
	Amber Solid on	1Gbps
Green (Left)	Solid on	Active Connection
	Blinking	Transmit/Receive activity
	Off	No Connection

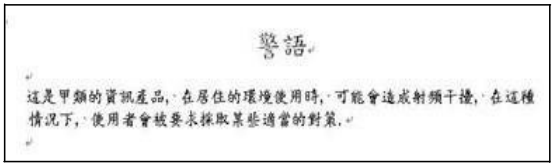
Mainboard

The mainboard becomes accessible once you open the system. It should look like the figure shown below.

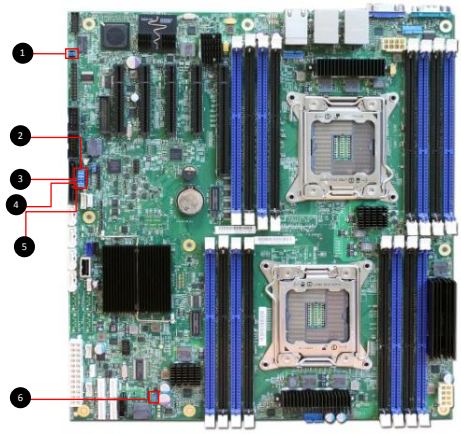


No.	Connector	Description
1	8 PIN PWR	8 pins power connector
2 - 5	DIMM A0, DIMM A1, DIMM B0, DIMM B1	DDR3 sockets for CPU
6	CPU0	Processor 0 socket
7	4 LAN	Rear LAN ports
8	VGA COM1	Rear VGA and COM ports

9 -12	DIMM G0, DIMM G1, DIMM H0, DIMM H1	DDR3 sockets for CPU
13	CPU1	Processor 1 socket
14	8 PIN PWR	8 pins power connector
15	FAN	Connector for system fans
16	24 PIN PWR	24 pins power connector
17-20	DIMM C0, DIMM C1, DIMM D0, DIMM D1	DDR3 sockets for CPU
21	PCH (I/O Hub)	C602
22	Internal USB	USB port (not used)
23-28	SATA	6 SATA ports
29-32	DIMM E0, DIMM E1, DIMM F0, DIMM F1	DDR3 sockets for CPU
33	Front USB	Front USB connectors
34-36	PCIE X8	3 x PCIe x 8 signals
37	PCIE X4	1 x PCIe x 4 signal
38	Front IO	Front IO Header
39	PCIE X16	PCIe x 8 Signals



Mainboard Jumper Settings



No.	Jumper	Description	Default
1	J1A5	HDD shorted: Chassis cover is closed. HDR open: Chassis cover is removed.	[1-2]
2	J1D3	Clear System CMOS Information 1-2 NORMAL RTC RST (DEFAULT) 2-3 CLR RST REGISTERS	[1-2]
3	J1D7	The user sets this 3-pin jumper to clear the password. The Patsburg SSB INTRUDER# pin should be strapped LOW when the password needs to be reset. 1-2 NORMAL OPERATION (DEFAULT) 2-3 CLEAR PASSWORDS	[1-2]
4	J1D8	ME in forced update mode: 1-2 NORMAL OPERATION (DEFAULT) 2-3 CLEAR PASSWORDS	[1-2]
5	J3K2	1-2 GPIO CONTROLS WRITE PROTECT (DEFAULT) 2-3 FORCE WRITE PROTECT	[1-2]
6	J1E2	When this 3-pin jumper is set, it puts the iBMC Firmware in update mode, which enables the user to update IBMC Firmware code when necessary. 1-2 NORMAL MODE (DEFAULT) 2-3 FORCE IBMC UPDATE)	[1-2]

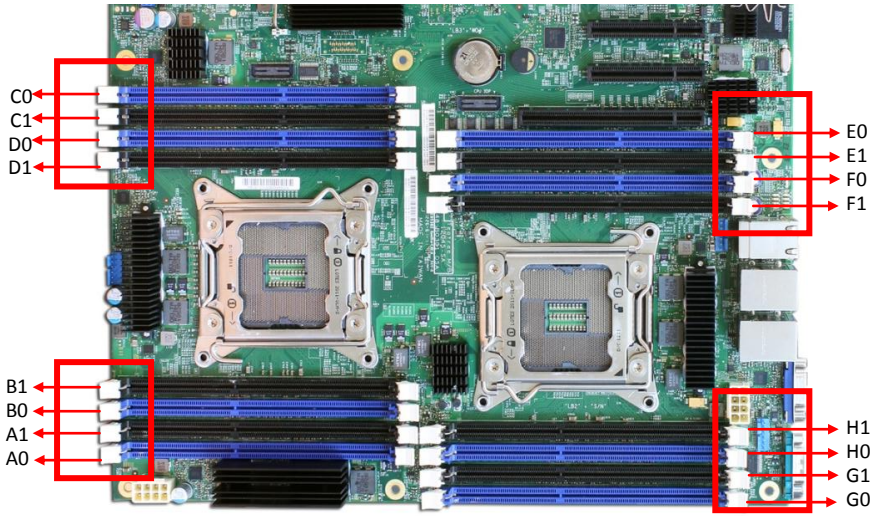
Note: Jumpers not indicated are for test purposes only.

Memory Population Rule

A given memory channel will have 1 or 2 DIMMs installed. If one DIMM is loaded, Lower digit notation dim socket should be used for ex DIMM A0, DIMM B0 etc. DIMM sockets are color coded also for easier loading.

Restrictions within a socket and across a socket

- No mixing of DIMMs with different voltages, frequency, type (LRDIMM, RDIMM)
- All DIMMs will have ECC.
- 8 Ranks per Channel
- CPU1 and CPU2 (When populated) will always be configured identically.
- Pairs of DIMMs (A1/B1, A2/B2, etc) MUST be the exact same (same vendor, rev, DIMM Loading Order
- Independent and locksetp, mirroring and non mirroring & sparing mode, Rank Sparing.



Checkpoints

A status code is a data value used to indicate progress during the boot phase. A subset of these status codes, known commonly as checkpoints, indicate common phases of the BIOS boot process.

Checkpoints are very useful in aiding software developers or technicians in debugging problems that occur during the pre-boot process.

Checkpoint Ranges

Status Code Range	Description
0x01 – 0x0B	SEC execution
0x0C – 0x0F	SEC errors
0x10 – 0x2F	PEI execution up to and including memory detection
0x30 – 0x4F	PEI execution after memory detection
0x50 – 0x5F	PEI errors
0x60 – 0x8F	DXE execution up to BDS
0x90 – 0xCF	BDS execution
0xD0 – 0xDF	DXE errors
0xE0 – 0xE8	S3 Resume (PEI)
0xE9 – 0xEF	S3 Resume errors (PEI)
0xF0 – 0xF8	Recovery (PEI)
0xF9 – 0xFF	Recovery errors (PEI)

Standard Checkpoints

SEC Phase

Status Code	Description
0x00	Not used

Progress Codes	
0x01	Power on. Reset type detection (soft/hard).
0x02	AP initialization before microcode loading
0x03	North Bridge initialization before microcode loading
0x04	South Bridge initialization before microcode loading
0x05	OEM initialization before microcode loading
0x06	Microcode loading
0x07	AP initialization after microcode loading
0x08	North Bridge initialization after microcode loading
0x09	South Bridge initialization after microcode loading
0x0A	OEM initialization after microcode loading
0x0B	Cache initialization
SEC Error Codes	
0x0C – 0x0D	Reserved for future AMI SEC error codes
0x0E	Microcode not found
0x0F	Microcode not loaded

PEI Phase

Status Code	Description
0x00	Not used
Progress Codes	
0x10	PEI Core is started
0x11	Pre-memory CPU initialization is started
0x12	Pre-memory CPU initialization (CPU module specific)
0x13	Pre-memory CPU initialization (CPU module specific)
0x14	Pre-memory CPU initialization (CPU module
0x15	Pre-memory North Bridge initialization is started

0x16	Pre-Memory North Bridge initialization (North Bridge module specific)
0x17	Pre-Memory North Bridge initialization (North Bridge module specific)
0x18	Pre-Memory North Bridge initialization (North Bridge module specific)
0x19	Pre-memory South Bridge initialization is started
0x1A	Pre-memory South Bridge initialization (South
0x1B	Pre-memory South Bridge initialization (South Bridge module specific)
0x1C	Pre-memory South Bridge initialization (South
0x1D – 0x2A	OEM pre-memory initialization codes
0x2B	Memory initialization. Serial Presence Detect (SPD) data reading
0x2C	Memory initialization. Memory presence detection
0x2D	Memory initialization. Programming memory timing information
0x2E	Memory initialization. Configuring memory
0x2F	Memory initialization (other).
0x30	Reserved for ASL (see ASL Status Codes section below)
0x31	Memory Installed
0x32	CPU post-memory initialization is started
0x33	CPU post-memory initialization. Cache
0x34	CPU post-memory initialization. Application Processor(s) (AP) initialization
0x35	CPU post-memory initialization. Boot Strap Processor (BSP) selection
0x36	CPU post-memory initialization. System Management Mode (SMM) initialization
0x37	Post-Memory North Bridge initialization is started
0x38	Post-Memory North Bridge initialization (North Bridge module specific)

0x39	Post-Memory North Bridge initialization (North Bridge module specific)
0x3A	Post-Memory North Bridge initialization (North Bridge module specific)
0x3B	Post-Memory South Bridge initialization is started
0x3C	Post-Memory South Bridge initialization (South Bridge module specific)
0x3D	Post-Memory South Bridge initialization (South Bridge module specific)
0x3E	Post-Memory South Bridge initialization (South Bridge module specific)
0x3F-0x4E	OEM post memory initialization codes
0x4F	DXE IPL is started
PEI Error Codes	
0x50	Memory initialization error. Invalid memory type or incompatible memory speed
0x51	Memory initialization error. SPD reading has failed
0x52	Memory initialization error. Invalid memory size or memory modules do not match.
0x53	Memory initialization error. No usable memory detected
0x54	Unspecified memory initialization error.
0x55	Memory not installed
0x56	Invalid CPU type or Speed
0x57	CPU mismatch
0x58	CPU self test failed or possible CPU cache error
0x59	CPU micro-code is not found or micro-code update i failed
0x5A	Internal CPU error
0x5B	reset PPI is not available
0x5C-0x5F	Reserved for future AMI error codes
S3 Resume Progress Codes	
0xE0	S3 Resume is stared (S3 Resume PPI is called by th

0xE1	S3 Boot Script execution
0xE2	Video repost
0xE3	OS S3 wake vector call
0xE4-0xE7	Reserved for future AMI progress codes
S3 Resume Error Codes	
0xE8	S3 Resume Failed
0xE9	S3 Resume PPI not Found
0xEA	S3 Resume Boot Script Error
0xEB	S3 OS Wake Error
0xEC-0xEF	Reserved for future AMI error codes
Recovery Progress Codes	
0xF0	Recovery condition triggered by firmware (Auto
0xF1	Recovery condition triggered by user (Forced
0xF2	Recovery process started
0xF3	Recovery firmware image is found
0xF4	Recovery firmware image is loaded
0xF5-0xF7	Reserved for future AMI progress codes
Recovery Error Codes	
0xF8	Recovery PPI is not available
0xF9	Recovery capsule is not found
0xFA	Invalid recovery capsule
0xFB – 0xFF	Reserved for future AMI error codes

PEI Beep Codes

# of Beeps	Description
1	Memory not Installed
1	Memory was installed twice (InstallPeiMemory routine in PEI Core called twice)
2	Recovery started
3	DXEIPL was not found
3	DXE Core Firmware Volume was not found
4	Recovery failed

4	S3 Resume failed
7	Reset PPI is not available

DXE Phase

Status Code	Description
0x60	DXE Core is started
0x61	NVRAM initialization
0x62	Installation of the South Bridge Runtime Services
0x63	CPU DXE initialization is started
0x64	CPU DXE initialization (CPU module specific)
0x65	CPU DXE initialization (CPU module specific)
0x66	CPU DXE initialization (CPU module specific)
0x67	CPU DXE initialization (CPU module specific)
0x68	PCI host bridge initialization
0x69	North Bridge DXE initialization is started
0x6A	North Bridge DXE SMM initialization is started
0x6B	North Bridge DXE initialization (North Bridge module specific)
0x6C	North Bridge DXE initialization (North Bridge module specific)
0x6D	North Bridge DXE initialization (North Bridge module specific)
0x6E	North Bridge DXE initialization (North Bridge module specific)
0x6F	North Bridge DXE initialization (North Bridge module specific)
0x70	South Bridge DXE initialization is started
0x71	South Bridge DXE SMM initialization is started
0x72	South Bridge devices initialization
0x73	South Bridge DXE Initialization (South Bridge module specific)
0x74	South Bridge DXE Initialization (South Bridge module specific)

0x75	South Bridge DXE Initialization (South Bridge module specific)
0x76	South Bridge DXE Initialization (South Bridge module specific)
0x77	South Bridge DXE Initialization (South Bridge module specific)
0x78	ACPI module initialization
0x79	CSM initialization
0x7A – 0x7F	Reserved for future AMI DXE codes
0x80 – 0x8F	OEM DXE initialization codes
0x90	Boot Device Selection (BDS) phase is started
0x91	Driver connecting is started
0x92	PCI Bus initialization is started
0x93	PCI Bus Hot Plug Controller Initialization
0x94	PCI Bus Enumeration
0x95	PCI Bus Request Resources
0x96	PCI Bus Assign Resources
0x97	Console Output devices connect
0x98	Console input devices connect
0x99	Super IO Initialization
0x9A	USB initialization is started
0x9B	USB Reset
0x9C	USB Detect
0x9D	USB Enable
0x9E – 0x9F	Reserved for future AMI codes
0xA0	IDE initialization is started
0xA1	IDE Reset
0xA2	IDE Detect
0xA3	IDE Enable
0xA4	SCSI initialization is started
0xA5	SCSI Reset
0xA6	SCSI Detect
0xA7	SCSI Enable
0xA8	Setup Verifying Password

0xA9	Start of Setup
0xAA	Reserved for ASL (see ASL Status Codes section below)
0xAB	Setup Input Wait
0xAC	Reserved for ASL (see ASL Status Codes section below)
0xAD	Ready To Boot event
0xAE	Legacy Boot event
0xAF	Exit Boot Services event
0xB0	Runtime Set Virtual Address MAP Begin
0xB1	Runtime Set Virtual Address MAP End
0xB2	Legacy Option ROM Initialization
0xB3	System Reset
0xB4	USB hot plug
0xB5	PCI bus hot plug
0xB6	Clean-up of NVRAM
0xB7	Configuration Reset (reset of NVRAM settings)
0xB8 – 0xBF	Reserved for future AMI codes
0xC0 – 0xCF	OEM BDS initialization codes
DXE Error Codes	
0xD0	CPU initialization error
0xD1	North Bridge initialization error
0xD2	South Bridge initialization error
0xD3	Some of the Architectural Protocols are not available
0xD4	PCI resource allocation error. Out of Resources
0xD5	No Space for Legacy Option ROM
0xD6	No Console Output Devices are found
0xD7	No Console Input Devices are found
0xD8	Invalid password
0xD9	Error loading Boot Option (LoadImage returned error)
0xDA	Boot Option is failed (StartImage returned error)
0xDB	Flash update is failed
0xDC	Reset protocol is not available

DXE Beep Codes

# of Beeps	Description
1	Invalid password
4	Some of the Architectural Protocols are not available
5	No Console Output Devices are found
5	No Console Input Devices are found
6	Flash update is failed
7	Reset protocol is not available
8	Platform PCI resource requirements cannot be met

ACPI/ASL Checkpoints

Status Code	Description
0x01	System is entering S1 sleep state
0x02	System is entering S2 sleep state
0x03	System is entering S3 sleep state
0x04	System is entering S4 sleep state
0x05	System is entering S5 sleep state
0x10	System is waking up from the S1 sleep state
0x20	System is waking up from the S2 sleep state
0x30	System is waking up from the S3 sleep state
0x40	System is waking up from the S4 sleep state
0xAC	System has transitioned into ACPI mode. Interrupt controller is in PIC mode.
0xAA	System has transitioned into ACPI mode. Interrupt controller is in APIC mode.

Note: Checkpoints may differ between different platforms based on system configuration. Checkpoints may change due to vendor requirements, system chipset or option ROMs from add-in PCI devices.

Labels

This system comes with related labels attached to the machine and packaging for your information. In this chapter, the label list and the location of the labels will be illustrated.

Label List

Item	Label Name	Qty
1	System SN Label	1
2	MAC ID Label	2
3	BMC ID Label	1

1. System SN Label

The barcode label includes the following item:

- Wistron Part no. (11 characters, except ".")

- Week code (3 characters) ex: 2010 16th week means: "016"

- Serial no. (5 characters, 00001~FFFFF by Hexadecimal)

(Every week should be arranged from 00001, and arrange by part no.)

- Manufacturing Code (2 characters), WZS is "J0"

- Engineering Version (2 characters)

* Detail label information refer to PE document.

Only a sample:

2&3. MAC & BMC ID Barcode Label

The barcode label includes the following item:

- BMC MAC no.

- Start MAC (the 1st of the total 6 numbers)

- End MAC No (the last of the total 6 numbers)

* Detail label information refer to PE document. Only a sample::

Warning Messages

Incorrect replacement of the lithium battery may lead to a risk of explosion.

The lithium battery must be replaced with an identical battery or a battery type recommended by the manufacturer.

Do not throw lithium batteries into the household waste. They must be disposed of in accordance with local regulations concerning special waste.

Removing a hot-swap power supply

When you remove or install a hot-swap power supply, observe the following precautions.

CAUTION:

The power control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.

CAUTION:

Never remove the cover on a power supply or any part that has the following label attached.

Hazardous voltage, current, and energy levels are present inside any component that has this label attached. There are no serviceable parts inside these components. If you suspect a problem with one of these parts, contact a service technician.

有關伺服器、儲存、電源、網路和機櫃產品
在安裝產品前請先閱讀

記住並遵守有關產品安全性與操作的所有說明。請隨時參考設備提供的操作說明 (平面或電子檔操作說明)。如果本指南與設備操作說明有出，以設備操作說明為準。詳細閱讀產品上及操作說明裡的所有注意事項。

為避免受傷、觸電、引起火災及設備受損，請仔細閱讀本指南所列的所有注意事項。

設備上的符號

下列符號可能會出現在設備上，表示潛在的危險情況：

這個符號和下列符號一起出現時表示有可能發生危險。如果沒有仔細閱讀注意事項，可能有受傷的危險。請參考操作說明以穫得明確的資料。

這個符號表示能源線路有危險或有觸電的危險。請向專業人員尋求維修協助。

注意：為避免觸電受傷，請不要打開外殼。請向專業人員尋求保養、升級和維修等協助。

這個符號表示有觸電的危險。這部份不會需要使用也不會需要維修。無論什麼原因都不要打開。

注意：為避免觸電受傷，請不要打開外殼。

在 RJ-45 插座上的符號表示網路介面連結。

注意：為避免觸電、引起火災及設備受損，請勿將電話或電信插頭插入此插座。

這個符號表示表面或零件過熱。如果接觸到這個表面，有可能有燙傷的危險。

注意：為避免接觸到過熱零件而燙傷，請等表面冷卻再接觸。

電源供應器或系統上的這些符號表示供應設備的電力來源有許多種。

注意：為避免觸電受傷，請拔掉所有的電線，完全切斷系統的電源。

這個符號表示該零件的重量超出一個人安全處理的建議重量。

注意：為避免受傷或設備受損，請仔細了解當地對手動處理材料的職業健康和安全性需求與指導方針。

甲類警語及 Label 位置大小

一般注意事項

保養和維修企業級商品的注意事項

警告
本電池如果更換不正確會有爆炸的危險
請依製造商說明書處理用過之電池

電池

- 請勿嘗試替電池充電
- 請勿將電池曝露在超過 60 度 C (140F)的溫度下。
- 請勿拆解、壓壞、戳破電池，也不要讓電池短暫與外界接觸，或者置於火中或水中。