FusionXpark™ GB10

Technical White Paper

Issue 01

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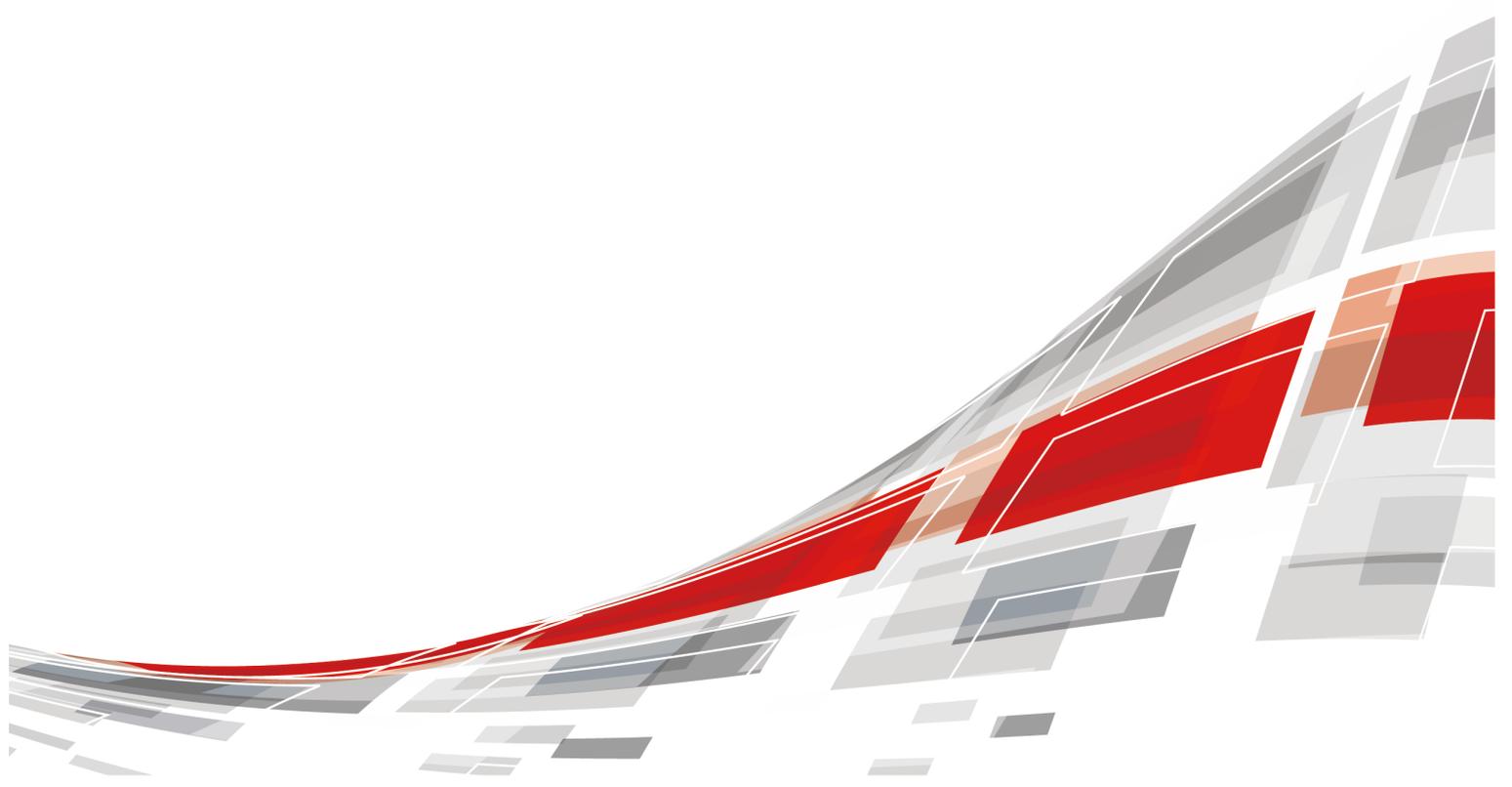
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About This Document

Purpose

This document offers a detailed overview of the exterior features and performance specifications of the FusionXpark™.

Intended Audience

This document is intended for:

- Pre-sales engineers
- Pre-sales engineers from channel partners

Symbol Conventions

The symbols that may be found in this document are defined as follows:

Symbol	Description
⚠ DANGER	Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
⚠ WARNING	Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
⚠ CAUTION	Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
NOTICE	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance deterioration, or unanticipated results. NOTICE is used to address practices not related to personal injury.
📖 NOTE	Supplements the important information in the main text. NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.

Change History

Document Version	Date	Change Description
01	2025-12-30	This issue is the first official release.

Contents

1 Product Introduction

FusionXpark™ GB10 portable artificial intelligence (AI) agent development platform (FusionXpark™) is a new desktop AI computer purpose-built for the local development and deployment of AI solutions.

Powered by the NVIDIA GB10 Grace Blackwell superchip, FusionXpark delivers up to 1 PetaFLOP of performance in a compact and energy-efficient design, making it ideal for handling demanding AI workloads. With 128 GB unified addressable system memory, developers can prototype, fine-tune, or inference the latest generation of AI models with up to 200 billion parameters, and seamlessly deploy them to data centers or the cloud.

Figure 1-1 Product appearance

2 Product Features

Exceptional AI performance

Powered by the NVIDIA GB10 Grace Blackwell superchip, this product harnesses the advanced NVIDIA Grace Blackwell architecture to deliver an impressive AI computational capacity of up to 1 petaFLOP at FP4 precision (sparse values). It comes with 128 GB memory and supports fine-tuning for models with up to 200 billion (200B) parameters.

Flexible deployment

- Designed with a compact, energy-efficient form factor, this device seamlessly fits into any desktop workspace and operates using a standard wall outlet—perfect for office environments.
- With support for hybrid deployment, it allows for effortless integration into data centers or cloud environments, enabling developers to scale resources as needed.

Advanced Scalability

Integrated NVIDIA ConnectX-7 networking enables the connection of two FusionXpark™ devices to work with AI models of up to 405 billion parameters.

Enhanced security and reliability

- One NVMe M.2 SSD with self-encryption is available.
- TPM 2.0 is supported.

3 Hardware Description

3.1 Physical Structure

1	Case	2	Fans
3	Heat sink	4	Mainboard
5	Stiffener	6	M.2 SSD
7	Wi-Fi and Bluetooth antennas	8	Base

9	Bottom cover	-	-

3.2 System Block Diagram

Figure 3-1 shows system architecture of the FusionXpark™.

Figure 3-1 FusionXpark™ system block diagram
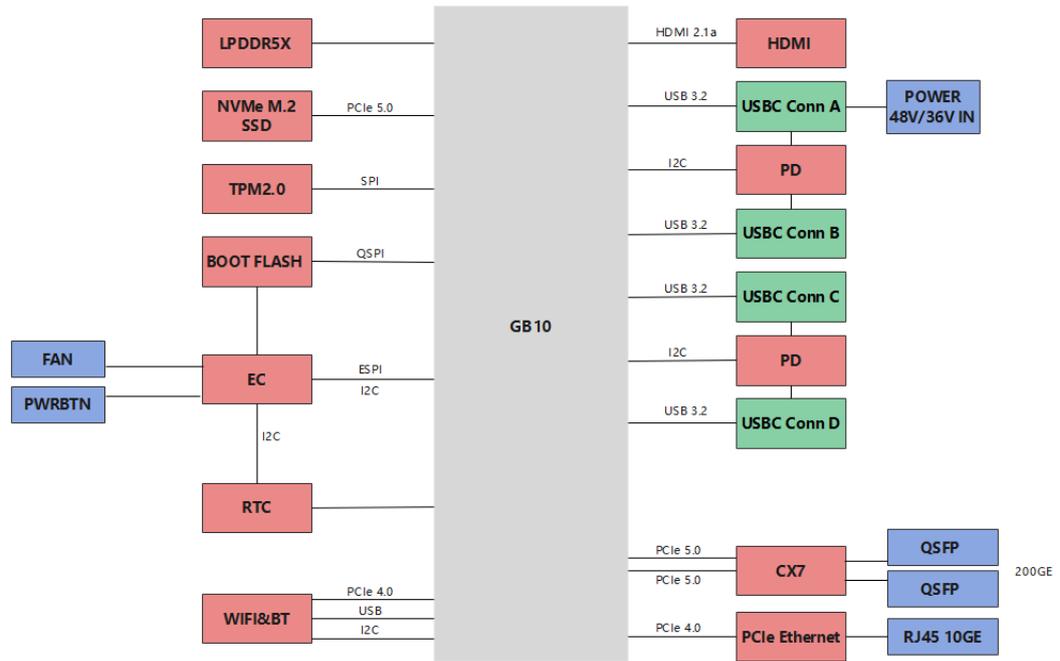
3.3 Front Panel

Appearance

Figure 3-2 Front panel

3.4 Rear Panel

Rear panel

Figure 3-3 Rear panel

Buttons and ports

Figure 3-4 Buttons and ports

1	Power button	2	Power port
3	USB-C (DisplayPort)	4	HDMI port
5	Ethernet port	6	QSFP

Description of buttons and ports

Table 3-1 Description of buttons and ports

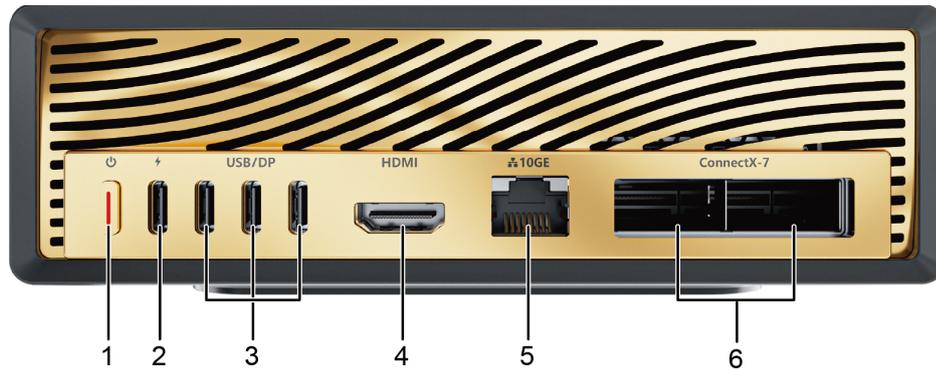| Name	Type	Quantity	Description
Power button	-	1	• When the device is powered on, you can press this button to gracefully shut down the OS. **NOTE** Press the power button for a short time, and the **Power-Off** dialog box will pop up. Select **Power Off** to immediately shut down. If you do not select an option, the system automatically powers off after 60s. • When the device is powered on, you can hold down this button for four seconds to forcibly power off the device. • When the power indicator is steady yellow, you can press this button to power on the device.
Power port	USB-C	1	USB 3.2 Type-C port with PD input (48 V/5 A power supply)
USB port	USB-C	3	USB 3.2 Type-C supporting an alternate mode (DisplayPort) **NOTE** Functionality issues may arise due to compatibility issues between docking stations of different brands or models.
Display port	HDMI	1	• Supports HDMI 2.1a connection to a monitor. • Supports HDMI multi-channel audio output.
Ethernet port	RJ45	1	10GE
Network port	QSFP ports	2	Used for connecting two FusionXpark™ devices. **NOTE** The two devices need to be connected using a QSFP cable. The QSFP cable is an optional accessory.

4 Software Description

4.1 NVIDIA DGX OS

FusionXpark™ adopts NVIDIA DGX^{TM} OS, which a customized Linux distribution for running AI, machine learning, and analytics applications. It includes platform-specific optimizations, drivers, and diagnostic tools tailored for NVIDIA hardware.

DGX OS serves as the underlying operating system for your FusionXpark™, providing:

- A robust Linux foundation optimized for AI workloads
- Pre-configured drivers and system settings for NVIDIA hardware
- Security updates and system maintenance capabilities
- Compatibility with the broader NVIDIA software ecosystem

4.2 AI Software Tools

FusionXpark™ offers various built-in AI software tools:

- NVIDIA NIM™
- NVIDIA Blueprints
- NVIDIA AI Workbench
- NVIDIA DGX Dashboard
- NVIDIA Container Toolkit
- CUDA
- JupyterLab (interactive computing environment)
- Python
- Docker

5 Product Specifications

5.1 Technical Specifications

Table 5-1 FusionXpark™ technical specifications

Item	Specifications
Architecture	NVIDIA Grace Blackwell
CPU	NVIDIA Grace 20-core ARM® CPU (10 Cortex-X925 + 10 Cortex-A725)
GPU	NVIDIA Blackwell architecture ● Blackwell CUDA Cores ● 5th Generation Tensor Cores, enabling 1 petaFLOP performance (supported data formats: TF32, FP16, BF16, INT8, FP8, FP6, and FP4) ● 4th Generation RT Cores ● 1 x NVENC and 1 x NVDEC (embedded) ● Up to 1000 tera operations per second (TOPS) inference speed (reaching 1 petaFLOP at FP4 precision with sparsity)
Memory	128 GB LPDDR5x unified system memory (8533 MHz, 256-bit interface, and 273 GB/s bandwidth)
Storage	1 x 1 TB, 2 TB, or 4 TB NVMe M.2 SSD with self-encryption (AES SED)

Item	Specifications
Network	1 x RJ-45 (10GE) port 2 x QSFP ports (ConnectX-7) with an aggregate bandwidth of 200 Gbit/s - Wi-Fi 7 - Bluetooth 5.4
Port	1 x USB 3.2 Type-C power port with PD input 3 x USB 3.2 Type-C ports supporting an alternate mode (DisplayPort) 1 x HDMI 2.1a port (multi-channel audio output)
Power adapter	240 W AC adapter **NOTICE** For optimal performance, use only the included 240 W power adapter. Using a different or lower-rated power supply may result in reduced system performance, failure to boot, or unexpected shutdowns.
System software	- NVIDIA DGX^{TM} OS - AI software tools - NVIDIA NIM™ - NVIDIA Blueprints - NVIDIA AI Workbench - NVIDIA DGX Dashboard - NVIDIA Container Toolkit - CUDA - JupyterLab (interactive computing environment) - Python - Docker
Security	- Self-encrypted NVMe (AES SED) - TPM 2.0 - UEFI secure boot

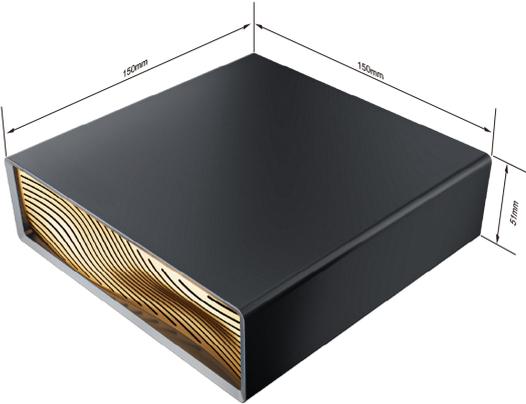# 5.2 Environmental Specifications

Table 5-2 Environmental specifications

Item	Specifications
Temperature	- Operating temperature: 10°C to 35°C (50°F to 95°F); optimal performance delivered at 25°C (77°F) - Storage temperature: –40°C to +60°C (–40°F to +140°F)

Item	Specifications
Altitude	Operating altitude: 0 m to 3038 m (0 ft. to 1000 ft.) Storage altitude: 0 m to 12,192 m (0 ft. to 4000 ft.)
Humidity	● Operating humidity: 20%RH to 80%RH (non-condensing) ● Storage humidity: 10%RH to 90%RH (non-condensing)
Noise	≤ 29 dBA (tested under typical operating conditions when the ambient temperature is not lower than 25°C or 77°F@950 m)

5.3 Physical Specifications

Table 5-3 Physical specifications

Item	Description
Dimensions (H x W x D)	51 mm x 150 mm x 150 mm (2.01 in. x 5.91 in. x 5.91 in.) **Figure 5-1** Physical dimensions
Weight (kg)	● Net weight: 1.2 kg (2.65 lb) ● Packaging material (for a set) weight: 2.4 kg (5.29 lb)

6 Software and Hardware Compatibility

For details about the operating system and hardware, see the user guide.

NOTICE

If incompatible components are used, the device may be abnormal. Such a fault is beyond the scope of technical support and warranty.

7 Safety Instructions

7.1 Maintenance and Warranty

For details about maintenance, visit the **Technical Support Website** > **Service Support Center** > **Customer Support Service**.

For details about warranty, visit the **Technical Support Website** > **Service Support Center** > **Warranty**.

8 Certifications

Country/Region	Certification	Standard
Europe	CE	**RED(2014/53/EU)** Article 3.1(a) Safety: EN 62368-1:2014+A11:2017 Article 3.1(b) EMC: EN 55032:2015+A11:2020 EN IEC 61000-3-2:2019+A1:2021 EN 61000-3-3:2013+A2:2021 EN 55035:2017+A11:2020 ETSI EN 300 386 V2.2.1:2022 Article 3.2 Radio: EN 300 328 V2.2.2(2019-07) EN 301 893 V2.1.1(2017-05) EN 300 400 V2.1.1(2017-03) EN 300 440 V2.2.1(2018-07) EN 303 687 v1.1.1(2023-06) Article 3.3(d, e): EN 18031-1:2024 EN 18031-2:2024 **RoHS(2011/65/EU):** EN IEC 63000:2018 **ErP(2009/125/EC):** Commission Regulation(EU) No 617/2013
Europe	Packaging and Packaging Waste	94/62/EC & (EU)2025/40

Country/Region	Certification	Standard
China	CCC	GB 17625.1-2022 GB 4943.1-2022 GB/T 9254.1-2021
China	SRRC	Announcement No. 129, issued in October 2021 by China's Ministry of Industry and Information Technology Announcement No.1, issued in January 2014 by China's Ministry of Industry and Information Technology
China	RoHS	SJ/T-11364 GB/T 26572 and it's Amendment No.1
Japan	VCCI	VCCI-CISPR 32:2016
Japan	TELEC	Article 2-1
Japan	RoHS	JIS C 0950:2021
Global	CB	IEC 62368-1:2014 IEC 62368-1:2018

9 Waste Product Recycling

To obtain the product recycling service from xFusion after products are scrapped, contact 400-009-8999 for technical support.

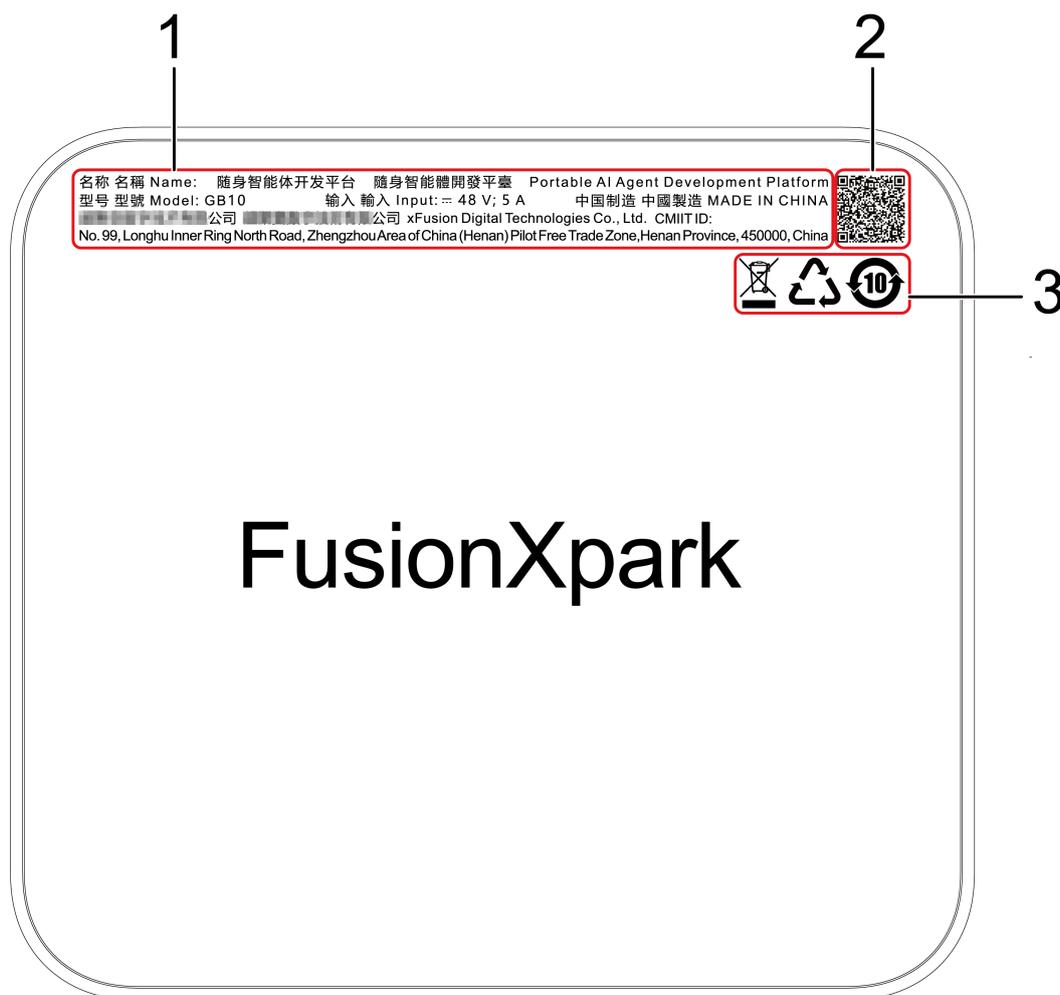# A Appendix

A.1 Label Information

Figure A-1 Label example

Table A-1 Label example description

No.	Description
1+3	Nameplate The nameplate provides the equipment name, model, power supply requirements, manufacturer information, and certification marks.
2	QR code **NOTE** Scan the QR code to obtain technical support resources.

A.2 Product SN

A serial number (SN) is a string that uniquely identifies a device. The SN is required when you apply for technical support. **Figure A-2** shows the location of the SN. **Figure A-3** shows an SN example.

Figure A-2 SN location
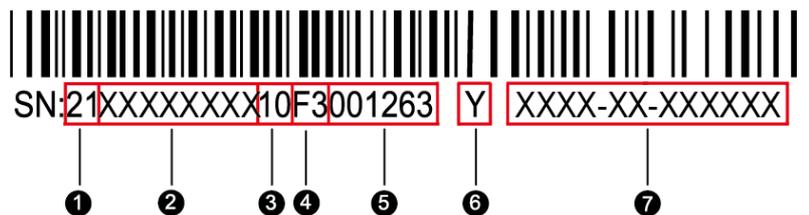

Figure A-3 SN example

Table A-2 SN example description

No.	Description
1	SN ID (two characters), which can only be **21**.
2	Material ID (eight characters), that is, the processing code.
3	Vendor code (two characters), that is, the code of the processing place.

4	Year and month (two characters)
	● The first character indicates the year.
	  – Digits 1 to 9 indicate years 2001 to 2009, respectively.
	  – Letters A to H indicate years 2010 to 2017, respectively.
	  – Letters J to N indicate years 2018 to 2022, respectively.
	  – Letters P to Y indicate years 2023 to 2032, respectively.
	NOTE
	The years from 2010 are represented by upper-case letters excluding I, O, and Z because the three letters are similar to the digits 1, 0, and 2.
	● The second character indicates the month.
	  – Digits 1 to 9 indicate January to September, respectively.
	  – Letters A to C indicate October to December, respectively.

5	Serial number (six characters)
6	RoHS compliance (one character). **Y** indicates RoHS compliant.
7	External model is the corresponding product name. For details, see the actual product.

A.3 Glossary

N

Non-volatile memory express (NVMe)	NVMe is a logical device interface specification for accessing NVM storage media through the PCI Express (PCIe) bus. It removes SCSI from the I/O stack.

P

Peripheral Component Interconnect Express (PCIe)	A computer bus PCI, which uses the existing PCI programming concepts and communication standards, but builds a faster serial communication system. Intel is the main sponsor for PCIe. PCIe is used only for internal interconnection. A PCI system can be transformed to a PCIe system by modifying the physical layer instead of software. PCIe delivers a faster speed and can replace almost all AGP and PCI buses.

A.4 Acronyms and Abbreviations

A

AI	Artificial Intelligence

C

CPU	Central Processing Unit

G

GPU	Graphics Processing Unit

H

HDMI	High-Definition Multimedia Interface

I

IEC	International Electrotechnical Commission

P

PCIe	Peripheral Component Interconnect Express

Q

QSFP	Quad Small Form-factor Pluggable

S

SSD	Solid-State Drive

T

TPM	Trusted Platform Module

U

UEFI	Unified Extensible Firmware Interface
USB	Universal Serial Bus