AI AppPack Server A5208 & AI Edge Node N1100

AI Deep-Learning for sophisticated video analytics, at both Center and Edge!
Face Recognition, LPR, Behavior Analysis, & Vehicle Classification

To ease system integration complexity, except for an "*open-platform*" **VMS**, GVD now has more products and features to help the **VMS** quickly engage in the most sophisticated AI VCA today, such as NEC, IBM, & ITRI Taiwan.

The **AI Edge Node N1100** is an AI server to be installed on the street. It is powered by TX2 GPU of 256 CUDA cores to speed up data process & analysis. It supports trained AI models and works excellently for all AI scenarios. The **AI AppPack Servers A5208**, on the other hand, is an AI server to be deployed in a server room. The product has dual CPUs and supports up to four GPUs for high-speed video process.

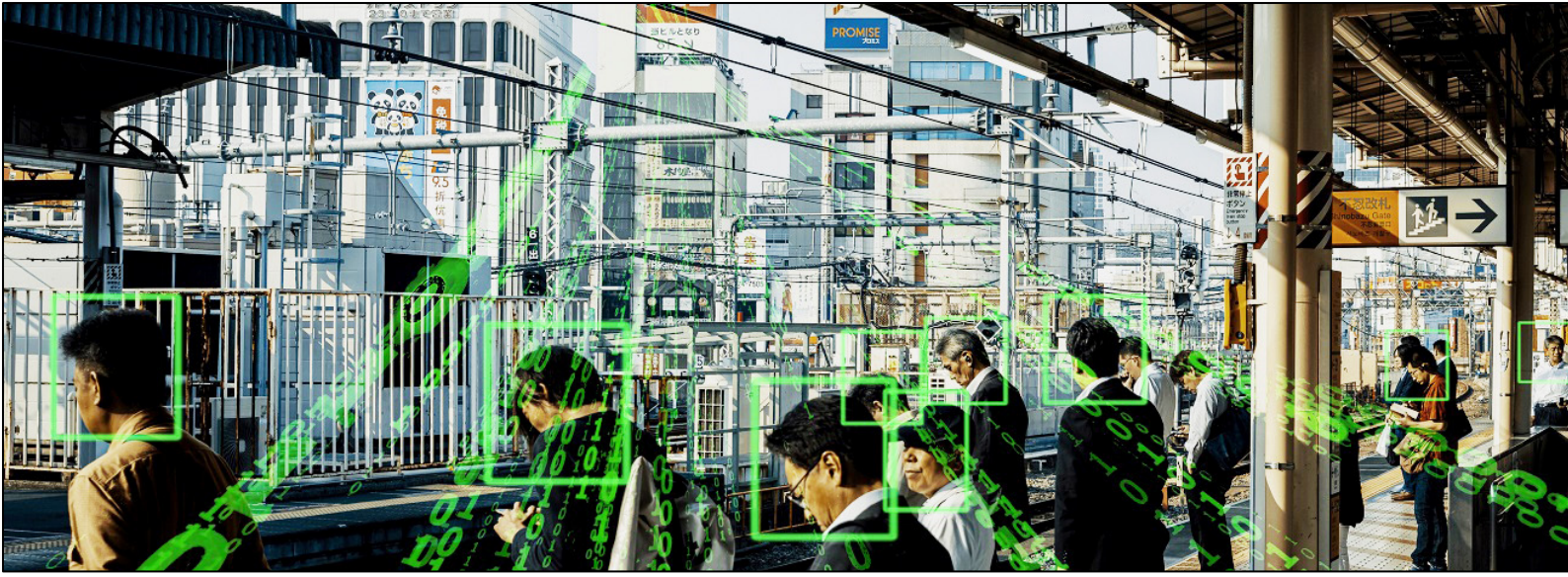
GVD AI servers feature exclusive "*virtual channels*" to maximize the number of channels that need to run AI, so as to minimize the cost of AI.

GVD uses the latest AI modeling to provide the best accuracy of LPR, vehicle classification, human behavior analysis, and face recognition. GVD LPR, in particular, is proven to have excellent accuracy both day-time and night-time.

Another enhancement is PASIA™, a highly tailor-made service to help customers annotate the video images collected by the **AI AppPack Servers** or **AI Edge Nodes** to build a useful dataset for Deep-Learning.

GVD **AI AppPack Server** and **AI Edge Node** can quickly join a large project that relies heavily on AI analytics. They are your best choice for a reliable, accurate, and fast neural network.

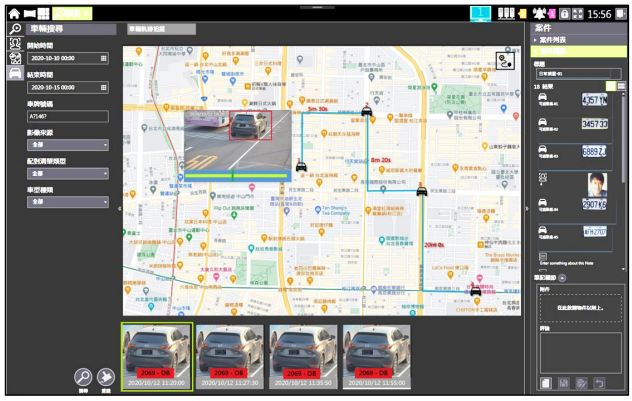
- Exclusive "*Virtual Channels*" to bust the high-price of AI
- Top AI performance with dual CPUs and four GPUs
- *Open Platform* design to support leading AI players: IBM, NEC, ITRI, & GVD
- AI modeling for LPR, vehicle classification, human behavior, and face recognition.
- GVD PASIA™ to make your Ai solutions from better to the best



Software Features

AI Modelling for LPR, traffic, behavior, and face recognition

GVD leverages the latest YOLO modeling, CNN (Convolutional Neural Network), and Deep-Learning, to provide the best accuracy in the market, even in a defective angle of the camera. GVD LPR is proven to have the best accuracy both day-time and night-time.



GVD VMS tracks down a vehicle by LPR

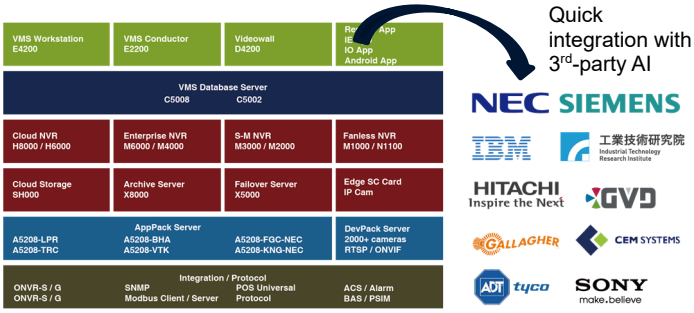
Exclusive "*Virtual Channels*" for AI

A "*Virtual Channel*" is a channel getting AI resources from a physical AI channel that reads only keyframes to save AI resources. "*Virtual Channels*" can maximize the number of the channels that need to run AI and substantially reduce the cost of AI.

GVD 3D People-Counting by AI, combining POS system

Open Platform for quick AI engagement

GVD's AI servers are designed for an "*open platform*", such as GVD **VMS.** Within a very short time, these servers can put the **VMS** to work with today's most sophisticated 3rd-party AI, including those of NEC, IBM, TechnoAware, & ITRI Taiwan.



GVD VMS 4.0 quick integration with 3rd-party AI

PASIA™ to make your AI solutions from Better to the Best

PASIA™, "*Per-Scenarios-Self-Improved AI*", is a service to help customers annotate the video images collected by GVD **VMS** to form a useful and larger dataset for the next phase of the *Deep-Learning* to improve the accuracy of video detection and recognition.

GVD PASIA™ service is proceeded by GVD AI technical engineers who are experienced in AI video polishing process as part of GVD after-sales service consultation.

GVD *Application iGlance* integrates the alarms of an app

A5208 for Face Recognition

The independent NIST testing has repeatedly confirmed **NEC**'s Facial Technology recognition and matching capability as the world's fastest and most accurate across all benchmarks and challenging conditions.

NEC Facial Technology couples recognition with real-time identification, verification, and situation analysis for quick decision-making, preemptive security, and smoother services.

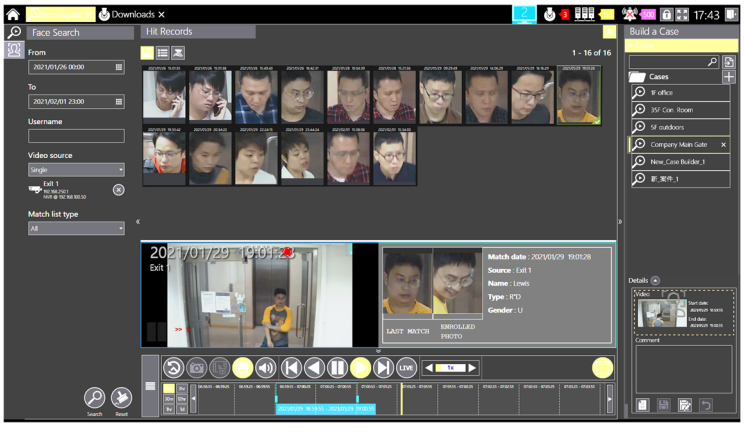
Installed in over 1,000 major systems in more than 70 countries and regions worldwide, **NEC** Facial boasts a stellar track record and wealth of practical experience.

GVD **VMS** has integrated **NEC** Facial Technology as parts of GVD **AppPack Server** systems to have provided complete solutions to retail, banking, hotel, etc with GVD **VMS** powerful toolkits: *CaseBuilder*, *eMap*, and *iGlance*.

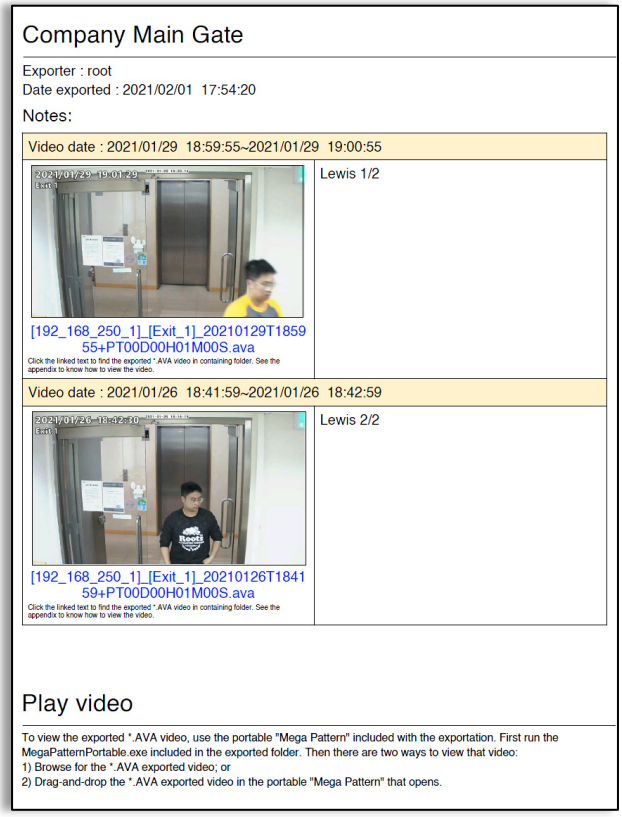
GVD features

- Retrieves a face hit on-map
- Retrieves a face hit with relevant video
- Supports watch lists of face hits
- Supports the setup of face hit alarm (with GVD Rule Wizard)
- Pushes face hit notices onto mobile phones and tablets
- Documents your investigation of faces (with GVD CaseBuilder)

1 Run a face search and document your facial investigation on GVD **VMS Manager**.



2 Export your face investigation to a systematic PDF report.



Company Main Gate

Exporter : root
Date exported : 2021/02/01 17:54:20

Notes:

Video date : 2021/01/29 18:59:55~2021/01/29 19:00:55

Lewis 1/2

[192_168_250_1]_[Exit_1]_20210129T185955+PT00D00H01M00S.ava

Click the linked text to find the exported *.AVA video in containing folder. See the appendix to know how to view the video.

Video date : 2021/01/26 18:41:59~2021/01/26 18:42:59

Lewis 2/2

[192_168_250_1]_[Exit_1]_20210126T184159+PT00D00H01M00S.ava

Click the linked text to find the exported *.AVA video in containing folder. See the appendix to know how to view the video.

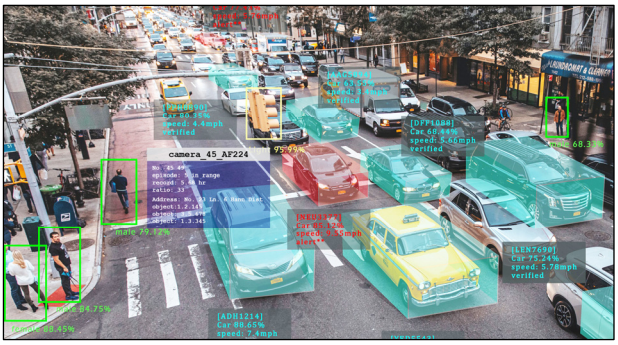
Play video

To view the exported *.AVA video, use the portable "Mega Pattern" included with the exportation. First run the MegaPatternPortable.exe included in the exported folder. Then there are two ways to view that video:
1) Browse for the *.AVA exported video; or
2) Drag-and-drop the *.AVA exported video in the portable "Mega Pattern" that opens.

A5208 & N1100 for LPR, Vehicle Classification, & Behavior Analysis

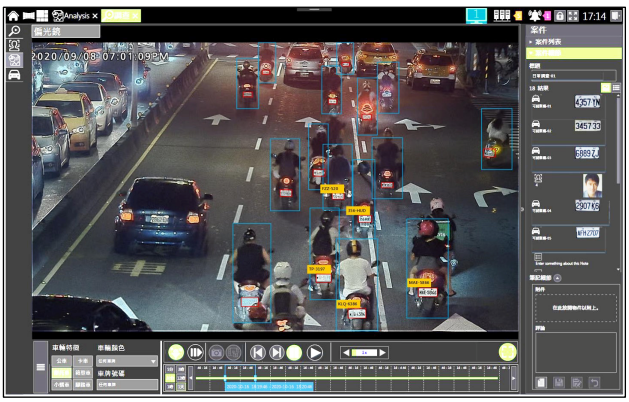
Vehicle classification

People has been using AI to improve city traffic. A city installs HD cameras to collect and pass images to cloud AI for vehicle classification, like sedans, buses, trucks, scooters, mopeds, motorcycles, etc. So, the video system can estimate vehicle speeds, calculate traffic flow, and improve traffic while saving city police workforce. However, sicne urban environment is frequently complex, GVD use "*Deep Learning*" that works like human brains to tell various vehicle types by merely looking at it. With GVD, traffic prediction is highly accurate.



LPR

GVD LPR is diversified optimized. Hardware-wise, it uses nVIDIA GPU to boost image processing. Software-wise, it uses the latest AI, including YOLO, CNN, *Deep-Learning,* and GVD proprietary *PASIA™* to get the best accuracy even in defective camera angles. Budget-wise, it features "*Virtual Channels*" to maximize the available AI channels. Function-wise, it features an "*AI-Polarizer*" that uses multiple filters to quickly retrieve a specific vehicle from a large video source.



Exclusive *Virtual Channels*

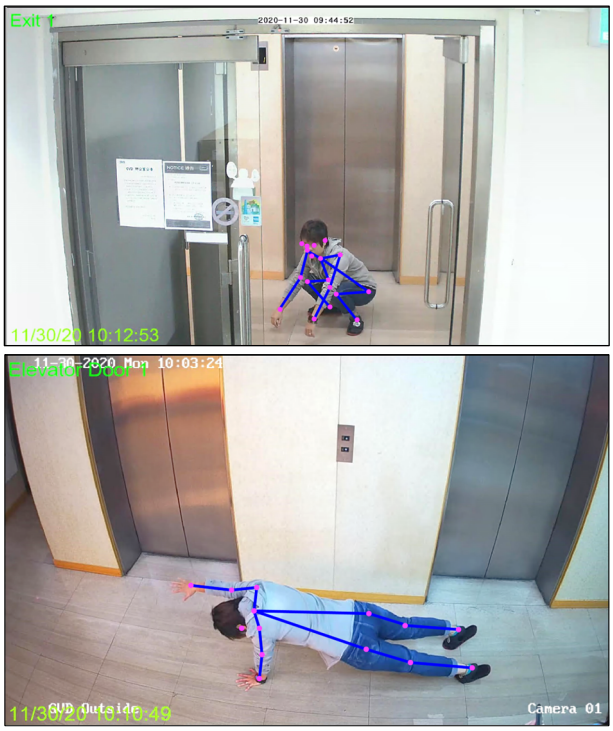
GVD AI products feature exclusive "*virtual channels*" to bust the high-price of AI. "*Virtual channels*" deal with "per-frame" analysis, which means a physical AI channel only needs to read the key frames for analysis to save AI resources to other non-physical AI channels.

Behavior analysis

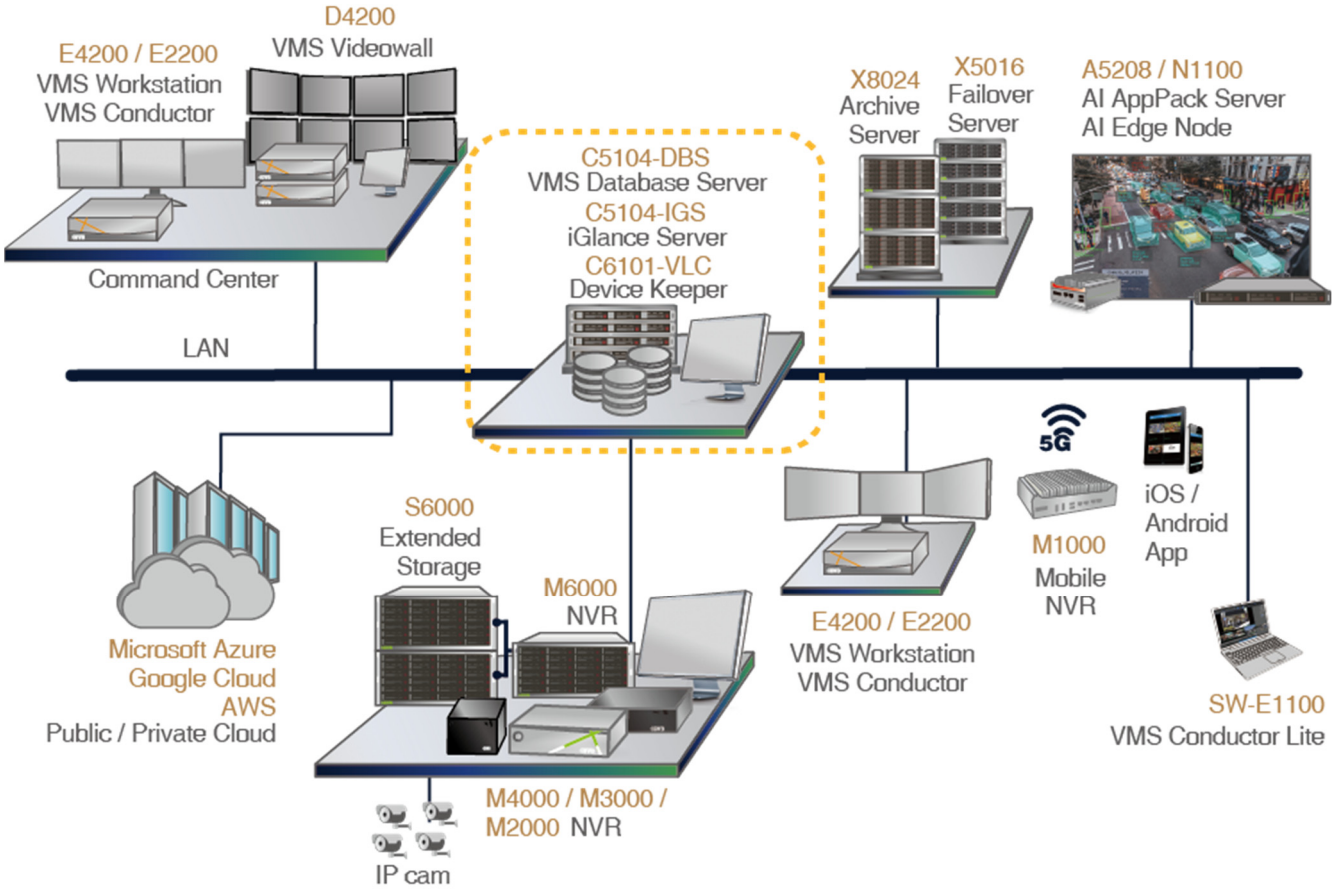
As terrorist attacks became more often across the globe in the past two decades, people are increasingly concerned about their safety in some public places, such as bus stations, subways, building lobbies, or shopping malls.

GVD's **AI AppPack Server A5208** leveragesmax. 4 GPUs to accelerate data process to pinpoint and analyze object behaviors in a complex environment with accuracy.

For example, in an ATM arcade, behavior analysis can detect and alarm when a person lingers for a prolonged time. On the staircase of a bus terminal, behavior analysis can alarm when a tourist remains for longer than a defined time, or in a healthcare center, behavior analysis can watch whether an aged falls.

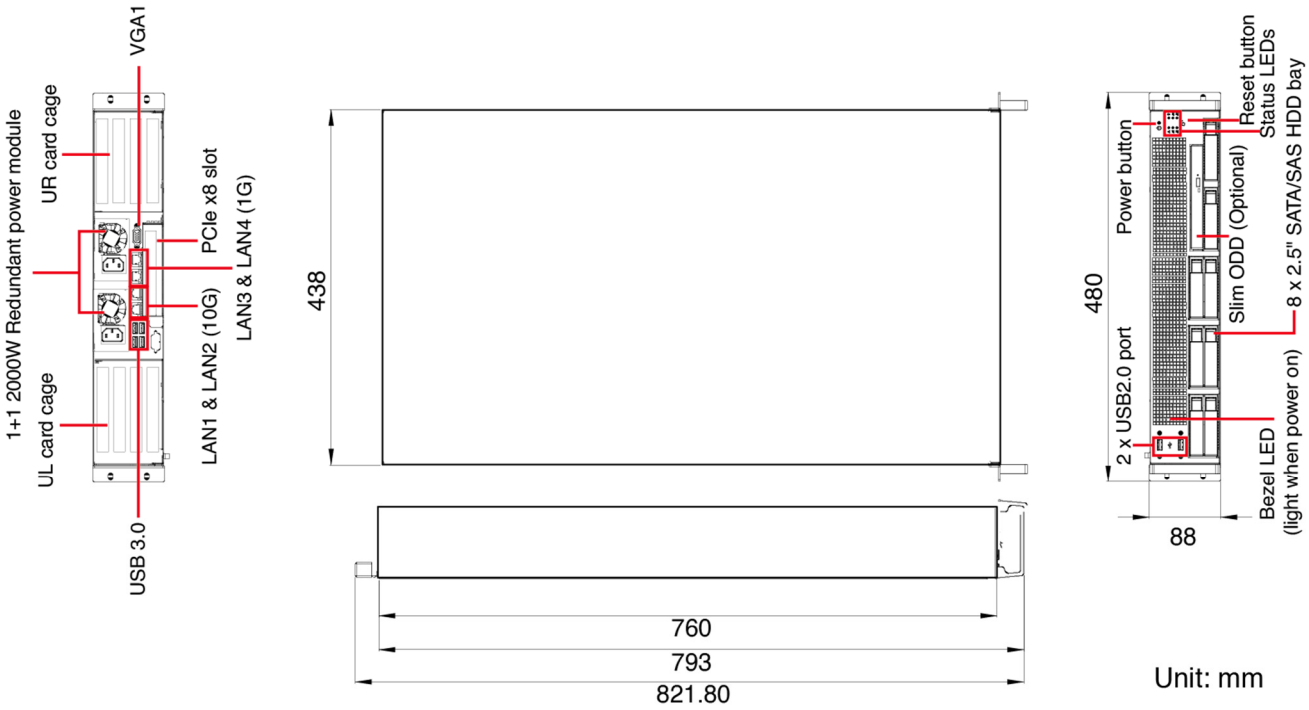


System Architecture



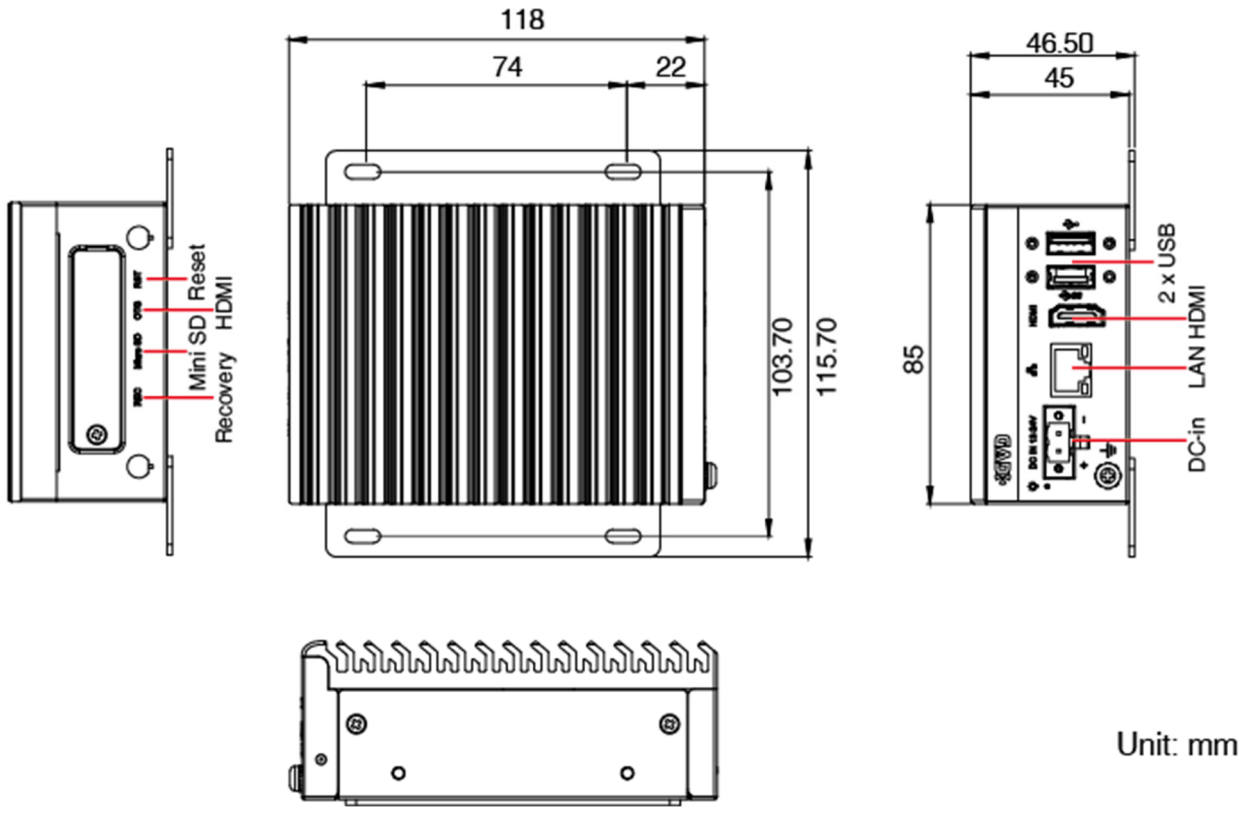
Hardware Dimensions

A5208



Unit: mm

N1100



Unit: mm

Ordering Information

Part No.	Description	
A5208-FGC-NE04C02K	NEC SFA Server	4 x NEC SFA F-Ch, with 2,000 targets and 300K records, supporting 20 x V-Ch, 80fps, CaseBuilder
A5208-FGC-NE16C05K	NEC SFA Server	16 x NEC SFA F-Ch, with 5,000 targets and 300K records, supporting 80 x V-Ch, 80fps, CaseBuilder
A5208-FGC-NE20C10K	NEC SFA Server	20 x NEC SFA F-Ch, with 10,000 targets and 300K records, supporting 100 x V-Ch, 80fps, CaseBuilder
A5208-KNG-NE20C03K	NEC SFA-Ready Server	Opt.: Max. 20 x NEC SFA K-Ch, with 3,000 targets and 300K records, supporting 20~100x V-Ch, 80fps, CaseBuilder
A5208-LPR	GVD LPR Server	Supporting 55~200 x V-Ch, 110fps, 2x~5x playback speeds, iGlance, CaseBuilder
A5208-TRC	GVD Vehicle Classification Server	Supporting 70~200 x V-Ch, 200fps, 4x~10x playback speeds, iGlance, CaseBuilder
A5208-BHA	GVD Behavior Analysis Server	Supporting 20~60 x V-Ch, 60fps, 2x~4x playback speeds, iGlance, CaseBuilder
N1100-LPR	GVD LPR Edge Node	Supporting 4~20 x V-Ch
N1100-TRC	GVD Vehicle Classification Server	Supporting 4~20 x V-Ch

Hardware Specifications

Product		A5208-FGC / KNG	A5208-TRC/BHA/LPR	N1100-TRC / LPR
Description		AI AppPack Server-NEC	AI AppPack Server	AI Edge Node
System	CPU	Dual CPUs: Intel® Xeon® Silver 4110 2.1GHz, 8-Core, 11MB L3 cache, 3647P		ARMv8.2 (64-bit), 1.9 GHz
	Memory	32GB DDR4		8GB LPDDR4
	OS	Windows® 10 IoT Enterprise		Linux OS with BSP
	Watchdog	Hardware watchdog & software watchdog		Software watchdog
Storage	Interface	2.5" (Hot-swap)		M.2 SATA & Micro SD
	Disk tray	8 x		1 x M.2 2280 NVME (PCIex4 M Key) 1 x Micro SD
	Storage capacity	8 x 10TB		2 x 1TB
	RAID level	N/A		N/A
Display	Output	1 x VGA		1 x HDMI
	Local display resolution	4096 x 2160		3840 x 2160
Network	Interface	2 x 10GbE + 2 x 10/100/1000 Mbps GbE		1 x 10/100/1000 Mbps GbE
	Protocols	IPv4, TCP/IP, UDP, HTTP, HTTPs, SMTP, SNMPv2, DNS, DDNS, DHCP, NTP, ARP, ICMP, FTP, RTSP/RTP/RTCP, IGMPv3, UPnP, CIFS, NFS		
Interface	USB port	Front: 2 x USB2.0; Rear: 4 x USB3.0		1 x USB 2.0; 1 x USB 3.0
	Serial COM port	1 x		1 x
Power	Voltage	100-240 Vac, 50-60Hz		
	Redundancy	Yes		N/A
	PSU	2000W 1+1 redundant power supply, 80 PLUS Platinum		Power Adaptor: 12-24V, 6A-3A
Environment	Operating temp.	0~35°C (32~95°F)		-10 ~ 60 °C with 0.7 m/s air flow
	Storage temp.	-20~60°C (-4~140°F)		-30°C~70°C (-22°F~158°F)
	Operating humidity	10~85%@40°C		95% @ 40 °C (non-condensing)
	Storage humidity	10~95%@40°C		N/A
Mechanic	Chassis	2U rackmount		Desktop & DIN Rail
	Certification	CE, FCC, CB, UL, BSMI, CCC		CE, FCC, CB, UL, BSMI, CCC (No RED certification)
	Dimensions (W)x(H)x(D)	438 x 88 x 760mm		85 x 45 x 118 mm
	Net weight w/o HDD	25.5kg		1.2 kg