DAHUA
TECHNOLOGY

256-channel Intelligent Video Surveillance Server

3U 16 HDD Network Video Recorder and Server

- Intel Quad-core Processor
- Maximum 512 Mbps Incoming Bandwidth
- 256 IP Channel Video Access
- Facial Database Management, Stores up to 300,000 Faces
- Facial Recognition Processing on Up to 16 Channels
- Stranger Mode to Detect Faces not Stored in Database
- Perimeter Protection on 32 Channels
- Supports RAID 0/1/5/6/10
- SAS 3.0 for Storage Extension
- Three (3) HDMI and One (1) VGA Video Outputs
- Redundant Power
- Five-year Warranty*

| Face Recognition | Face Capture | Metadata | Image Search | Blacklist Alarm |

System Overview

The Dahua Intelligent Video Surveillance Server Series (IVSS) combines Deep Learning algorithms, a powerful Graphics Processing Unit (GPU), and an advanced Network Video Recorder (NVR) into an all-in-one Artificial Intelligence server. Dahua built the IVSS series from the ground-up as a dedicated AI surveillance server that eliminates the complications of browser updates, incompatible camera plug-ins, incompatible flash memory, and outdated Web technology.

The integrated GPU module and advanced deep learning algorithms perform powerful video structure analysis with metadata, achieve precision human facial analysis, and support 16 channels of real-time face recognition based on a database that stores up to 300,000 faces. IVSS technology captures, records and categorizes various facial features, including age, gender, expression, and whether the target face wears glasses or sports facial hair; compares the data to faces in the database, and displays real-time facial recognition data.

IVSS offers advanced features to customize the powerful Dahua Analytics for different applications. For example, facial feature filtering displays only those faces that meet target criteria and Stranger Mode detects a face not stored in the database and triggers an alarm, takes a snapshot, or records the face for further scrutiny. The IVSS is ideal for applications that require entrance/exit management, where knowing who is coming and going is a valuable asset.

Functions

Real-time Face Recognition

The IVSS7016 performs real-time facial recognition on up to 16 channels simultaneously. In addition to the 300,000 facial images, the IVSS database also stores names, genders, birthdays, nationality, address, and ID information associated with each facial image. IVSS offers powerful and configurable database management features that can be applied to each face recognition channel independently.

Perimeter Protection

Dahua Analytics+ includes Tripwire and Intrusion functions that offer custom tripwires based on object type for automation in limited access areas. Perimeter Protection requires less pixels to detect an object to deliver improved accuracy and decreased false alarms due to lights, weather, trees, or animals.

Stranger Mode

IVSS supports two facial detection modes: Regular and Stranger. In Stranger mode, when IVSS detects a face not stored in the device's database, it can trigger an alarm, a buzzer, take a snapshot, or initiate recording. IVSS also incorporates a Similarity Threshold, where the server triggers an alarm for a face that does not match a minimum recognition level. The Stranger Mode and the Similarity Threshold are designed for critical infrastructure sites where access control is of vital importance.

Efficient Search

IVSS searches images by facial features to improve search efficiency. The server support uploading and storing 100,000 facial images for comparison with recorded faces. This search capability allows operators to quickly and easily search multiple channel recordings to determine when and where a person of interest appeared in a recording.

High Efficiency Video Coding (H.265)

The H.265 (ITU-T VCEG) video compression standard offers double the data compression ratio at the same level of video quality, or substantially improved video quality at the same bit rate, as compared to older video compression technologies. H.265 offers such impressive compression by expanding the pattern comparison and difference-coding, improving motion vector prediction and motion region merging, and incorporating an additional filtering step called sample-adaptive offset filtering.

ONVIF

Technical Specification

System

Main Processor	Embedded Micro Controller
Operating System	Embedded LINUX
Operating Interface	Web (PCAPP), Local GUI

Analytics

Perimeter Protection	Device	32 Channels
	Camera	256 Channels
Human Face Detection	Device	16 Channels (at 1080p resolution)
	Camera	40 Channels
Face Recognition	Capacity	50 Databases 300,000 Facial Images in total
	Device	IP Camera without Facial Recognition: 16 Channels IP Camera with Facial Recognition: 40 Channels (up to 40 facial images analyzed per second)
	Camera	40 Channels
License Plate Recognition	Database	50 Plate Databases 300,000 License Plate Numbers in total Supports Allow and Block Lists
	LPR Channels	32 Channels

Video Parameters

Remote Connections		256 Channels
Network Bandwidth	Incoming	512 Mbps
	Recording	384 Mbps
	Outgoing	128 Mbps
Supported Resolution		12 MP, 8 MP, 6 MP, 5 MP, 4 MP, 3 MP, 1080p, 960p, 720p, D1, CIF, QCIF
Decoding Capability		6 Channels of 12 MP at 20 fps 7 Channels of 12 MP at 15 fps 6 Channels of 8 MP at 30 fps 12 Channels of 8 MP at 15 fps 7 Channels of 6 MP at 30 fps 9 Channels of 5 MP at 30 fps 11 Channels of 5 MP at 25 fps 12 Channels of 4 MP at 30 fps 18 Channels of 4 MP at 20 fps 19 Channels of 3 MP at 25 fps 12 Channels of 1080p at 60 fps 24 Channels of 1080p at 30 fps 36 Channels of 720p at 30 fps
Video Output		VGA: One (1) Channel HDMI: Three (3) Channels Supports 4K Video Output VGA Out 1 and HDMI Out 1 send the same video stream
Multi-screen Display		Maximum 36-channel Local Live View Maximum 16-channel PCAPP Live View Customizable Display
Third-party Support		ONVIF, RTSP, Sony, Panasonic, Axis, Arecont, Pelco, Canon, Samsung

Network

Video Compression	Smart H.265+, H.265, Smart H.264+, H.264
Audio Compression	G.711a, G.711u, PCM, G726
Interface	Four (4) RJ-45 Ports (10/100/1000 Mbps) Self-adaptive E
Network Port Mode	NIC Binding Mode, including: Multiple-address Mode, Load Balancing, Fault-tolerance
Network Protocol	HTTP, HTTPS, TCP/IP, IPv4, RTSP, UDP, SMTP, NTP, DHCP, DNS, DDNS, P2P
Interoperability	ONVIF (Profile S, T and G), CGI, SDK
Web Browser	IE 9, Chrome, Firefox, PCAPP (other browser can only setup, no live view)
Mobile Operating System	iOS, Android

Playback and Backup

Multiple-Channel Playback	Maximum 16-channel Playback
Record Search	Video Detection Search, Manual Record, I/O Alarm, Intelligent Event, All Records
Storage Medium	Internal HDD SAS Disk Array Enclosure
Backup Method	HDD Peripheral USB Storage Device
Playback Function	Play, Pause, Stop, Fast Forward, Fast Backward, Reverse Play, Frame by Frame Play, Full-screen, Backup (clip/file), Snapshot, Digital Zoom, Audio On/Off

Storage

Internal HDD	16 SAS/SATA 3.0 HDDs Up to 10 TB capacity for each Disk
HDD Mode	RAID 0/1/5/6/10

Alarms

General Alarm	Motion Detection, Tampering, Local Alarm
Anomaly Alarm	IPC offline alarm, storage error, HDD full, IP conflict, MAC conflict, login lock, AI module temperature alarm, AI module offline, fan malfunction
Intelligent Alarm	Human face detection, human face recognition, perimeter protection (intrusion, tripwire), plate recognition
Alarm Linkage	Record, snapshot (full image), local external alarm output, IPC external alarm output, access and control, audio prompt, buzzer, log, preset, email

Auxiliary Interface

Front Cover		7-in. HD LCD (1920 × 1080 or 1280 × 1024), Hot-swappable
Audio	Input	One (1) Channel (reserved)
	Output	One (1) Channel
Alarm	Input	16 Channels
	Output	Eight (8) Channels
eSATA		One (1) Port (reserved)
RS232		One (1) Port (for debugging or transparent COM data)
USB		Four (4) Ports: • Two (2) USB 2.0 Ports (front panel) • Two (2) USB 3.0 Ports (rear panel)
Video Output	HDMI	Three (3) Channels, supports 4K output
	VGA	One (1) Channel
Network		Four (4) RJ-45 Ports (10/100/1000 Mbps) Self-adaptive Ethernet Ports

Electrical

Power Supply	100 VAC to 240 VAC ±20%, 50/60 Hz
Power Consumption	110 W, without HDD and idling

Environmental

Operating Conditions	0° C to +45° C (32° F to 113° F), 10% to 90% RH
Storage Conditions	0° C to +40° C (32° F to 104° F), 30% to 85% RH
Operating Altitude	5000.0 m (16,404.20 ft)

Construction

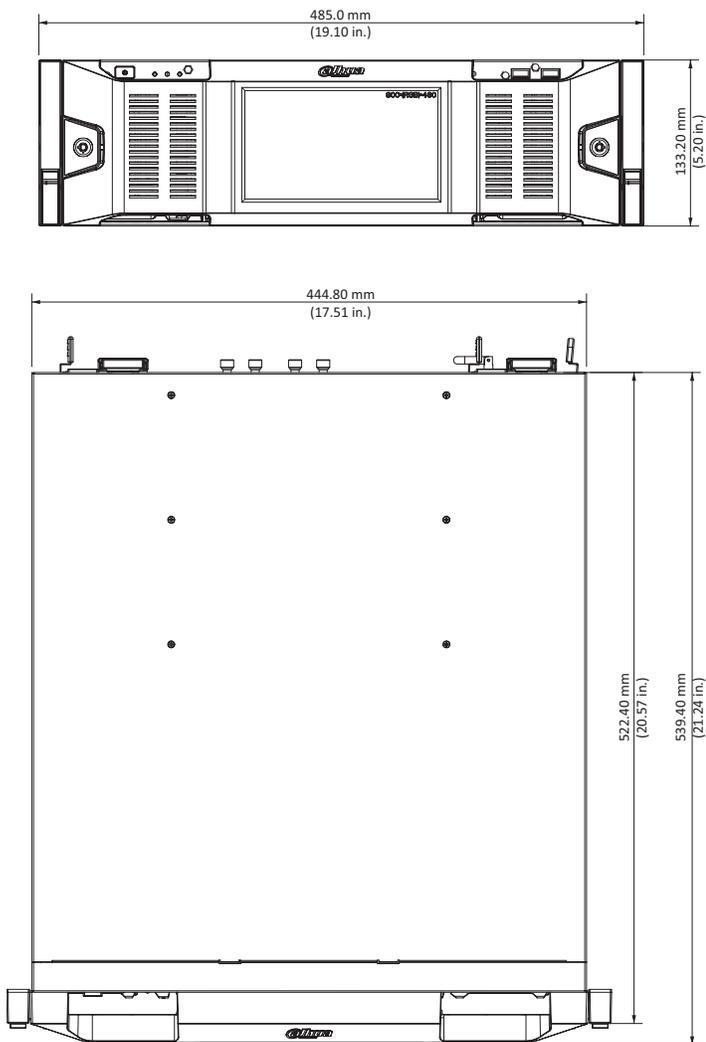|		
Dimensions	Chassis	3U, 444.80 mm x 539.40 mm x 133.20 mm (17.51 in. x 21.24 in. x 5.20 in.)
	with	485.0 mm x 539.40 mm x 133.20 mm (19.09 in. x 21.24 in. x 5.20 in.)
	Packaging	689.0 mm x 779.0 mm x 464.0 mm (27.13 in. x 30.67 in. x 18.27 in.)
Net Weight		16.0 kg (35.27 lb)
Gross Weight		17.0 kg (37.48 lb)
Installation		Desktop or Rack-mount

Certifications

Safety	UL 60950-1 CAN/CSA C22.2 No. 60950-1-07 EN 60950-1/IEC 60950-1
Electromagnetic Compatibility (EMC)	CFR Part 15 FCC Subpart A EN55024, EN55035, EN50130-4, EN60950-1

Ordering Information

Type	Part Number	Description
IVSS	DHI-IVSS7016DR-2I	3U 16 HDD Intelligent Video Surveillance Server with Redundant Power, LCD screen and 16-Channel Back-end Face Recognition
Optional Module	AIModule-IVSS	Each Module (up to 6) Adds: • 8 Channels Face Recognition (from an IP camera without analytics) • 20 Channels Face Recognition (from an IP camera with Face Detection) • 20 Pictures Analyzed per second • 16 Channels Perimeter Protection

Rear Panel

Dimensions (mm/in.)

485.0 mm (19.10 in.)

133.20 mm (5.20 in.)

444.80 mm (17.51 in.)

522.40 mm (20.57 in.)

539.40 mm (21.24 in.)

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