

# DHI-NVR5416-16P-EI

Dahua 16CH 4HDD 1.5U NETWORK VIDEO RECORDER



Launched by Dahua Technology, WizSense is a series of AI products and solutions that adopt independent AI chip and deep learning algorithm. It focuses on human and vehicle with high accuracy, enabling users to fast act on defined targets. Based on Dahua's advanced technologies, WizSense provides intelligent, simple and inclusive products and solutions.

## Series Overview

The NVR5000-EI series offers outstanding performance and high-grade recording technology that make it ideal for IP video surveillance applications. It has a powerful processor, that offers high access and forwarding bandwidth and strong decoding capabilities that together produce unimpeded streams. Thanks to its built-in AI chip and Dahua's advanced deep learning algorithms, the NVR supports a variety of AI functions, such as high-precision face recognition and perimeter protection. They shorten the response time to events and make videos more interactive. This NVR is compatible with numerous third-party devices, making it a great solution for surveillance systems that work with Video Management Software (VMS).

## Functions

### AcuPick

This industry-leading search technology effectively utilizes both front-end and back-end intelligence to help with searching through massive video data to quickly and conveniently locate targets with greater precision.

- Supports Smart H.265+, H.265, Smart H.264+, H.264 and MJPEG decoding formats.
- Max. decoding capability: 32 × 1080p@30 fps or 16 × 4MP@30 fps.
- Max. 384/384/384 Mbps incoming/recording/outgoing bandwidth.
- Supports IP cameras with a resolution up to 32 MP.
- Supports AcuPick with up to 16 channels.
- Provides access to remote storage devices via iSCSI to expand storage capacity.
- AI by Recorder supports 2-channel face detection and recognition, up to 20 face databases and 20,000 face images; 4-channel perimeter protection; 8-channel SMD Plus.
- AI by Camera supports face detection and recognition, perimeter protection, SMD, metadata, ANPR, stereo analysis, heat map, people counting, PPE detection, smart object detection and smart sound detection.
- Supports EPTZ, and one-click arming and disarming.



### NVR NEXT

With its enhanced system, the NVR introduces NVR NEXT, a user-friendly GUI featuring a modular design to improve operation efficiency and streamline workflows, catering to the needs of small and medium-sized businesses.

### AI Features

Embedded with deep-learning algorithms, the NVR offers advanced AI capabilities, delivering precise detection, efficient analytics, and reduced false alarms.

### PPE Detection by Camera

With the PPE Detection function, the camera can detect attributes including face masks, helmets, glasses, safety vests, and the color of tops and bottoms, and determine whether PPE requirements are met. PPE compliance or non-compliance alarms can be triggered according to the alarm settings.

## Technical Specification

### System

|                     |                            |
|---------------------|----------------------------|
| Main Processor      | Industrial-grade processor |
| Operating System    | Embedded Linux             |
| Operating Interface | Web, Local GUI             |

### AI

|  |  |
|--|--|
| AI by Recorder   | Face detection; face recognition; perimeter protection; SMD Plus   |
| AI by Camera   | Face detection; face recognition; video metadata (human, motor vehicles, and non-motor vehicles); perimeter protection; SMD; stereo analysis; crowd distribution; people counting; ANPR; vehicle density; heat map; PPE detection; smart object detection; smart sound detection |
| AcuPick Performance of AI by Camera (Number of Channels) | Max. 16-channel, 1 combined event per channel/s  |

### Perimeter Protection

|  |   |
|--|---|
| Perimeter Performance AI by Recorder (Number of Channels)  | 4 channels, 10 IVS rules for each channel |
| Perimeter Performance of AI by Camera (Number of Channels) | All channels (16 targets/s)               |

### Face Detection

|   |   |
|---|---|
| Face Attributes   | Gender; age group; glasses; expressions; face mask; beard |
| Face Detection Performance of AI by Recorder (Number of Channels) | 2 channels (up to 12 face images/s each channel)          |
| Face Detection Performance of AI by Camera (Number of Channels)   | 16 channels   |

### Face Recognition

|   |  |
|---|--|
| Face Database Capacity  | Up to 20 face databases with 20,000 images, with a total capacity of 2.5 G. Name, gender, birthday, address, credential type, credential No., countries & regions and state can be added to each face image. |
| Face Recognition Performance of AI by Recorder (Number of Channels) | 1. 16-channel FD (by camera) + FR (by recorder), image stream: 16 face images/s<br>2. 2-channel FD (by recorder) + FR (by recorder), video stream: 12 face images/s  |
| Face Recognition Performance of AI by Camera (Number of Channels)   | 16 channels  |

### SMD Plus

|                      |   |
|----------------------|---|
| SMD Plus by Recorder | 8 channels: Secondary filtering for human and motor vehicle, reducing false alarms caused by leaves, rain and lighting condition change |
| SMD by Camera        | All channels (32 targets/s)   |

## Video Metadata

|   |  |
|---|--|
| Metadata Performance of AI by Camera (Number of Channels) | 8 channels   |
| Human Attributes  | Top color, top type, bottom color, bottom type, hat, bag, age, gender and umbrella   |
| Motor Vehicle Attributes                                  | License plate, plate color, vehicle body, vehicle model, vehicle logo, calling, seatbelt, vehicle interior, vehicle registration location. |
| Non-motor Vehicle Attributes                              | Vehicle model, vehicle color, number of persons, helmet.   |

## Vehicle License Plate Comparison

|                                     |   |
|-------------------------------------|---|
| ANPR by Camera (Number of Channels) | All channels (8 targets/s)  |
| License Plate Database Capacity     | 1. Create up to 20,000 plate numbers.<br>2. Blocklist and allowlist |

## Audio and Video

|                           |   |
|---------------------------|---|
| Access Channel            | 16 channels   |
| Network Bandwidth         | AI disabled: 384 Mbps incoming, 384 Mbps recording and 384 Mbps outgoing<br>AI enabled: 200 Mbps incoming, 200 Mbps recording and 200 Mbps outgoing   |
| Resolution                | 32 MP;24 MP;16 MP;12 MP;8 MP;6 MP;5 MP;4 MP;3 MP;1080p;720p;960p;D1;CIF;QCIF  |
| Decoding Capability       | AI disabled: 2-channel 32 MP@25 fps; 2-channel 24 MP@25 fps; 4-channel 16 MP@30 fps; 5-channel 12 MP@30 fps; 8-channel 8 MP@30 fps; 10-channel 6 MP@30 fps; 12-channel 5 MP@30 fps; 16-channel 4 MP@30 fps<br>AI enabled: 1-channel 32 MP@25 fps; 1-channel 24 MP@25 fps; 2-channel 16 MP@30 fps; 4-channel 12 MP@30 fps; 6-channel 8 MP@30 fps; 8-channel 6 MP@30 fps; 8-channel 5 MP@30 fps; 12-channel 4 MP@30 fps |
| Video Output              | 2 VGA, 2 HDMI<br>VGA: 1920 × 1080, 1280 × 1024, 1280 × 720<br>HDMI: 7680 × 4320, 3840 × 2160, 1920 × 1080, 1280 × 1024, 1280 × 720<br>Heterogeneous video source output for HDMI1 and HDMI2<br>Simultaneous video source output for VGA1 and HDMI1<br>Simultaneous video source output for VGA2 and HDMI2   |
| Multi-screen Display      | Main screen: 1/4/8/9/16<br>Sub screen: 1/4/8/9/16   |
| Third-party Camera Access | ONVIF; Panasonic; Sony; Axis; Arecont; Pelco; Canon; Hanwha   |

## Compression Standard

|                   |   |
|-------------------|---|
| Video Compression | Smart H.265+; H.265; Smart H.264+; H.264; MJPEG |
| Audio Compression | G.711a; G.711u; PCM; G726                       |

## Network

|                     |   |
|---------------------|---|
| Network Protocol    | HTTP; HTTPS; TCP/IP; IPv4; IPv6; RTSP; UDP; NTP; DHCP; DNS; SMTP; UPnP; IP Filter; FTP; DDNS; SNMP; Alarm Server; P2P; Auto Registration; IP Search (Supports IP camera, DVR, NVS, etc.); iSCSI |
| Mobile Phone Access | iOS; Android  |

|                           |   |
|---------------------------|---|
| Interoperability          | ONVIF 25.06 (Profile T; Profile S; Profile G; Profile M); CGI; SDK  |
| Browser                   | Chrome; IE; Safari; Edge; Firefox   |
| <b>Recording Playback</b> |   |
| Multi-channel Playback    | Up to 16 channels   |
| Record Mode               | General, motion detection; intelligent; alarm; POS  |
| Backup Method             | USB device and network  |
| Playback Mode             | Instant playback, general playback, event playback, target video, video clip, tag playback, smart playback (face and motion detection)  |
| <b>Storage</b>            |   |
| Disk Group                | YES   |
| <b>Alarm</b>              |   |
| General Alarm             | Motion detection; local alarm; alarm box; camera external alarm; network alarm; scene changing; PIR alarm; thermal alarm  |
| Anomaly Alarm             | Error (no disk; disk error; low space; low quota space; abnormal disk health; network disconnection; IP conflict; MAC conflict; abnormal fan speed); video loss; video tampering; camera offline; audio detection   |
| Intelligent Alarm         | Face detection; perimeter protection; face recognition; video metadata (human, motor vehicles, and non-motor vehicles); SMD Plus; stereo analysis; crowd distribution; people counting; ANPR; vehicle density; heat map; PPE detection; smart object detection; smart sound detection |
| Alarm Linkage             | Record; snapshot (panoramic); local alarm output; IPC external alarm output; audio; buzzer; log, preset; email  |
| <b>Port</b>               |   |
| Audio Input               | 1-channel RCA   |
| Audio Output              | 2-channel RCA   |
| Alarm Input               | 16 channels   |
| Alarm Output              | 6 channels (1-channel 12 V 1 A output )   |
| Disk Interface            | 4 SATA ports, each disk can contain up to 20 TB. This limit varies depending on the environment temperature.  |
| eSATA                     | 1   |
| RS-232                    | 1   |
| RS-485                    | 1 (half-duplex serial communication)  |
| USB                       | 3 (1 front USB 2.0 port, 2 rear USB 3.0 ports)  |
| HDMI                      | 2   |
| VGA                       | 2   |
| Network Port              | 1 (10/100/1000 Mbps Ethernet port, RJ-45)   |
| PoE Port                  | 16 ports, 10/100 Mbps, IEEE 802.3 af/at, 1-8 ports support ePoE   |
| <b>General</b>            |   |
| Power Supply              | 100–240 VAC, 50-60 Hz   |

|                       |  |
|-----------------------|--|
| Power Consumption     | Total output of NVR is ≤ 13 W (without HDD) Total output power of PoE is 150 W, the maximum output power of a single port is 25.5 W  |
| Net Weight            | 4.82 kg (10.63 lb)   |
| Gross Weight          | 7.09 kg (15.63 lb)   |
| Product Dimensions    | 440.0 mm × 415.1 mm × 70.0 mm (17.32" × 16.34" × 2.76") (W × D × H)  |
| Packaging Dimensions  | 530.0 mm × 500.0 mm × 210.0 mm (20.87" × 19.69" × 8.27")(W × D × H)  |
| Operating Temperature | -10 °C to +55 °C (+14 °F to +131 °F)   |
| Storage Temperature   | -20 °C to +60 °C (-4 °F to +140 °F)  |
| Operating Humidity    | 10%–93% (RH), non-condensing   |
| Certifications        | FCC: 47 CFR FCC Part15, SubpartB, Class A<br>CE-EMC: EN 55032:2015+A1:2020;<br>EN IEC 61000-3-2:2019+A1:2021;<br>EN 61000-3-3:2013+A1:2019+A2:2021; EN 55035:2017+A11:2020; EN 50130-4:2011+A1:2014<br>CE-LVD: EN 62368-1:2014 |

### Ordering Information

| Type                   | Model                      | Description                                 |
|------------------------|----------------------------|---|
| NETWORK VIDEO RECORDER | DHI-NVR5416-16P-EI         | Dahua 16CH 4HDD 1.5U NETWORK VIDEO RECORDER |
|                        | DHI-ARB1606                | Alarm Box                                   |
| Accessories (Optional) | ESS1504C                   | 4 Bay eSATA Extension Cabinet               |
|                        | DHI-RailBracket60/L-Shaped | Dahua Server Cabinet Rail Bracket           |

### Accessories

Optional:



DHI-ARB1606 Alarm Box

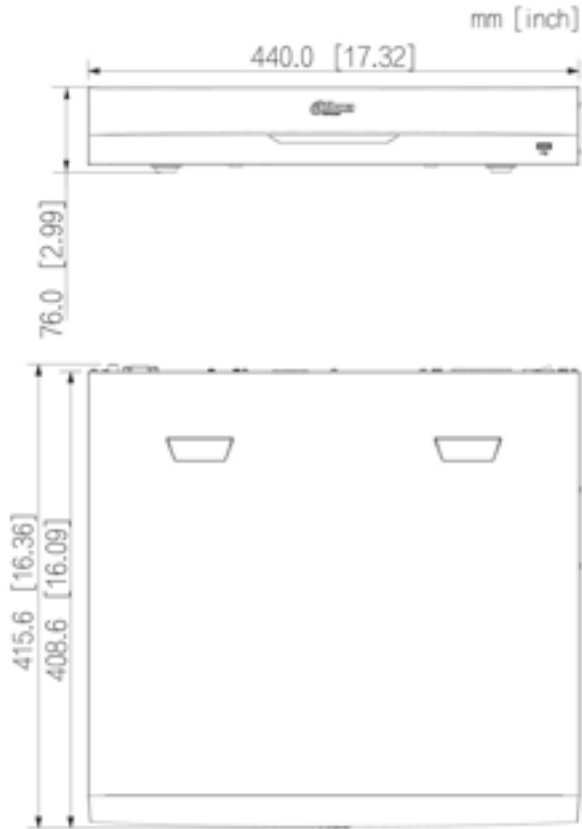


ESS1504C 4 Bay eSATA Extension Cabinet



DHI-RailBracket60/L-Shaped Dahua Server Cabinet Rail Bracket

**Dimensions (mm[inch])**



**Panels**

