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Granite (4U, 16HDDs)
The reliable video server

At a glance...

Class
Enterprise

Hard Drives
16 x 3.5" hot swap

Storage
64 TB

Channels
Up to 64 analogue +
128 IP/megapixel

Size (D x W x H)
715 x 480 x 177 mm

The Granite is a robust and reliable hybrid digital video recording system available with 16 x 3.5" front loading hot swap disks projects that may need to record a combination of analogue and IP network cameras.

Providing various redundant features as standard, Granite is an ideal solution for the demanding requirements of airports, ports, casinos, town centres, utilities, government and police, as well as high security industrial and commercial applications. The Wavestore operating software is maintained on a solid state drive, providing a fast boot up and high reliability.

High performance and flexible recording

Easy to install and operate, the Granite is able to simultaneously record video images from a combination of analogue and IP network cameras.

Up to 192 channels can be recorded simultaneously from up to 64 analogue cameras or 128 IP/megapixel cameras with a choice of H.264, MxPEG, MPEG-4, MPEG-2, JPEG2000 or MJPEG compression. Up to 8 HD-SDI cameras can be specified at the time of the order.

Easy to install and operate

Wavestore's remote monitoring software allows users to securely monitor real-time live images or retrieve recorded

video over the network, whilst multiple Granite servers can be configured into a server group to support large and distributed video surveillance applications.

Simple drag and drop function enables each user to create unique multiple display preferences whilst the Granite offers an extremely fast search facility to allow users to be able to quickly review recorded images of any incident.

Export to the native Wavestore format and benefit from features such as encryption and image authentication or alternatively convert the video to any of a wide selection of standard formats such as MPEG, Flash Video, AVI, and many more.

Ultra reliable

As is the case with other Wavestore digital recording systems, the Granite, which is designed for 19 inch rack mounting, utilises an ultra reliable Linux based open software platform and its robustness is further enhanced with its 2 + 1 redundant power supply design. To underscore its confidence in the reliability of the Granite, Wavestore offers a full three year return to base warranty on the hardware.

Video Management Software (VMS)

Video standards	PAL or NTSC standards, HD-SDI and IP
Video resolution	QCIF, CIF, 2CIF, DCIF, D1, 720p, 1080p, VGA, megapixel, multi-megapixel, custom
Analogue rate at D1	Up to 25/30 fps (PAL or NTSC) per input; up to 1600/1920 fps per recorder
IP and HD rates	High image rate streams supported, camera dependent
Still image	JPEG/BMP/PNG
Zoom	Unlimited digital zoom by mouse wheel
Record type	Continuous, schedule, motion, alarm, event and digital input trigger
Recording tracks	3 independent tracks assignable to different HDDs with different settings
Overwrite modes	Configurable auto deletion and overwrite function by time or disk allocation
Privacy mask	Configurable mask to avoid viewing sensitive areas within a camera view
Time zone	Regional setting available
Languages	Multiple languages supported
Operating system	Embedded Linux platform
Recorders per location	1 to 255
Distributed locations	1 to unlimited

Remote viewer client

Remote users	2 to unlimited concurrent users
Operating systems	Windows (8, 7, Vista, XP) and Linux (Red Hat and Debian based systems)
Mobile client	Support for Android and iOS devices
Find and display	Instantaneous and simultaneous display of live and recorded images
Video displays	User configurable by image size, aspect ratio and position
Video displays layouts	Standard and customisable layouts with saving option per user

Playback, search and export

Super-fast multi-camera video search	Full-frame linear and logarithmic search options with variable-speed sliders
Slow-motion and fast playback	From 0.1x to 2x times normal speed, frame-step using keyboard, mouse or jog-shuttle dial with all frames, or up to 8192x in fast forward / rewind
Playback mode	Multi-way: play, rewind, jump, fast-forward, frame-step multiple cameras simultaneously
Playback display	Synchronise and replay all camera images
Additional search options	Conditional metadata, alarms, events, annotation, motion, date and time
Intelligent search	Highlighted activities on recorded tracks
Export mode	Simultaneously backup multiple cameras, including linked audio
Live video export	Available
Export devices	CD, DVD, USB, HDD
Advanced backups	Ability to transcode video and audio data to large number of formats, including AVI, WMV, MPEG, and MP4

Events and alarms

Advanced events	Shows a real time stream of incoming events and alarms on the main window
Event detection	Any third party technologies events and alarms, video loss, darkening, motion within image, camera movement, camera tamper, alarm input, login succeeded, login denied, fault, warning
Event management	Customisable display and sound, definable search, and instant response options
Event actions	Record on alarm, text overlay, boost recording rate, trigger output, spot monitor, PTZ camera on preset, notify client, run script, emails, flashing light, sound alerts, email video clips
Event notification	Via client viewer, email or TCP/IP message
Other features	Alarm event logging, enable and disable on schedule
Motion Mask/Areas of interest	Configurable areas to target analogue analytics

Licensable features

De-warping for any 360 degree cameras	Provides customisable linear views of live and archived images and the ability to recall a total field of view and follow subjects as if tracking with a PTZ camera, creating ad hoc video clips around the occurred events
Multiple interactive maps	Configurable map screen for finding and interacting with cameras and devices
Virtual Matrix	Ability to display video from multiple cameras from different recorders on monitor walls
HTTP proxy server	Allows remote management of cameras and other equipment that is isolated on the local surveillance network

Optional modules

Third party integration	Ability to translate any third party events and trigger a wide range of definable actions based on customisable rules
Biometric facial recognition	Ability to interface with biometric facial recognition systems to dynamically compare images of individuals from incoming video streams against specific databases and immediately send alerts when a positive match occurs
Intelligent Video Analytics (IVA)	Ability to integrate with any video analytics allowing specific types of events and activities to be recognised automatically and promptly alarming the operator directly within the user interface when an event occurs
People counting	Delivers accurate metrics to monitor people flow, people tracking and queue management, efficiently improving customer service and sales performance
Electronic Point of Sales (EPOS)	Ability to record and display text from EPOS devices either embedded or alongside associated video images providing transactions search options
Automatic Number Plate Recognition (ANPR/LPR)	Ability to register the arrival time of service vehicles and permit access to authorised vehicles to restricted areas

Software Development Kit (SDK)

SDK	Windows ActiveX Component

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Camera support

Analogue inputs	Up to 64 channels, BNC 1 Vpp, 75Ω - Optional loop through panel with auto-termination
HD-SDI inputs	Up to 8 channels
Network inputs	Up to 128 (IP/megapixel) channels
Hybrid configuration	Up to 192 total channels
Compression formats	H.264, MPEG-4, MPEG-2, M-JPEG, JPEG2000 and MxPEG
PTZ devices	Full 3 axis control (PAN, TILT & ZOOM) using a 3-axis mouse or joystick controller
PTZ mode	Preset and Tour
IP camera setup	Drop down menu
IP camera discovery	Automatic for ONVIF cameras
IP camera ping	Available, plus additional tools
IP camera web browser setup	Direct access or via HTTP proxy server client function
Camera and tracks	Multiple recording profiles
Camera support	Open platform for analogue, IP, megapixel, multi-megapixel, HD, HD-SDI, thermal and any 360 degree (fisheye) cameras
ONVIF support	Profile S compliant (profile G and profile C under development)
Virtual spot monitor	Ability to present any H.264 analogue or IP camera stream in RTSP format

Audio

Inputs channels	Up to 127, camera dependent
Recording format	G. 711 (8K samples per sec)
Sampling rate	16kHz or 8kHz
Features	Lip-synchronised playback and live functionality for video/audio
Two-way audio	Talk back function for any analogue, ONVIF and many other IP cameras

Network

Network ports	2 x 1000 Mbps ports - Upgradable
Network bandwidth	Maximum recommended input rate 300Mbits/sec per channel
Supported protocols	TCP/IP, DNS, SMTP, NTP, SSH, HTTP, RTSP
Configuration mode	Static or dynamic addressing
Time sync (NTP)	Automatically synchronized to other compatible recorders or external time source
Bandwidth control	Per user or per recorder

Security and redundancy

Password profile	Multiple protection levels
Cameras and displays	Accessible on a per-user basis
Configuration files	Save and restore capability for any recorder in the group
Digital watermarking	Image authentication with real time checking and display
Encryption	Up to 4096 bit encryption
Diagnostics	Remote and secure diagnostics, repair functionality available – Optional
Remote administration	Remote control via TCP/IP network, including restart and rebooting
Automatic system re-start	After power loss (when power resumes)
Monitoring	Full system monitoring, including SMART disk health monitoring and SNMP – Optional
Failover	Ability to switch recording to alternative standby server upon unavailability of any server in the same group - Optional
Failover recovery	Recording automatically returns to the original server and interim recordings are migrated back, upon recovery of the lost server -
Watchdog function	Auto-reboot of system in case of system failure
Redundant recording	NAS, SAN and RAID options

Storage

Internal HDD	60GB SDD boot drive for rapid start-up and up to 16 x 3.5" SATA-2 front loading HDDs
Hot-Swappable HDD	Available
NAS and SAN storage	Via iSCSI or SAS interface
RAID level	0, 1, 5, 6 - Optional

Electrical

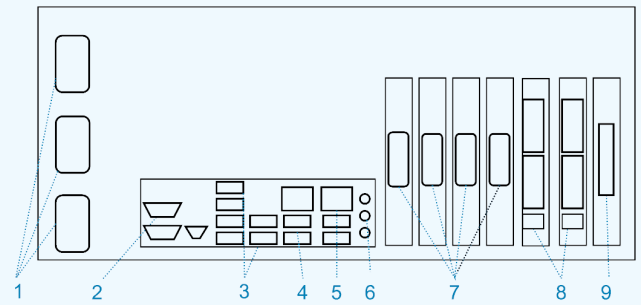|	
Input voltage	100-240V
Typical consumption	250W (includes 4 x 4TB HDDs)
Power supply rating	650W
Power Supply Unit (PSU)	2 + 1 redundant

Environmental

Operating temperature	5 to 40°C (41 to 104°F)
Relative humidity	Humidity 20 to 40% RH (non-condensing)

Mechanical

Chassis form factor	Extended 4U 19" with sliding rails
Dimension (D x W x H)	715 x 480 x 177 mm
Shipping dimension	850 x 610 x 320 mm
Shipping weight	35kg (with 8 HDDs)

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Rear Panel

1. 90 to 240V AC inputs (2+1 redundant power supply)
2. HDMI output, plus mini and full size display port outputs for VGA adaptor (not simultaneously)
3. 6 USB 3.0 ports, plus 4 USB 3.0, plus 2 additional USB 3.0 ports on the front of the server
4. Port for USB/RS485 control interface
5. Primary Gigabit LAN (the second LAN port can be enabled to support separate network interfaces simultaneously)
6. Motherboard audio inputs/outputs
7. 16 channel or 8 channel audio/video inputs (if fitted) - audio and video are combined in single port on current capture cards
8. 8 channel alarm I/O (multiple cards can be installed)
9. External SAS RAID interface

Note:

Please consult 'MKT-0089-GC-xx' document to overview the complete Wavestore server range and 'MKT-0027-GC-xx' to discover all Wavestore supported cameras.

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Intelligent, integrated video solutions for any application

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