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v641

With a 4Mpx sensor, the Phantom v641 provides a high level of detail to high speed imaging. The v641 has on-camera controls, Phantom CineMag II compatibility, and dual HS-SDI, making it especially advantageous in exacting applications.

- 1,450 fps at 2560 x 1600
- Exposure Index Range:
 - Mono 6,400 – 32,000
 - Color 1,600 – 8,000
- 8, 16, 32GB RAM
- 128, 144, 256, 512GB CineMag II compatible

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OVERVIEW

SPECIFICATIONS

ACCESSORIES

MEDIA

VIDEOS

Resolution	FPS
2560 x 1600	1,450
2048 x 1690	1,730
2048 x 1024	2,740
1920 x 1080	2,560
1280 x 1024	3,780
1280 x 800	4,820
640 x 480	10,700
800 x 600	7,370
1280 x 720	5,350
512 x 512	12,300
512 x 384	16,200

256 x 256	29,800
256 x 128	53,900
256 x 64	90,200

Common resolutions and frame-rates, other resolutions available.

Short Description

- 6 Gpx/sec, 4Mpx camera
- The v641 provides a 4 megapixel sensor and greater than 6 gigapixel/second throughput. That means full-resolution frame rates of 1450 frames-per-second (fps), and 1920 x 1080 HD-resolution frame rates of over 2500 fps.

Throughput/Speed

- 6 Gpx/second
- Max speed at full resolution of 2560 x 1600 is 1450 fps to RAM and 195 fps to CineMag
- Max speed at reduced resolution of 256 x 8 is 219,000 fps to RAM
- Min frame rate of 10 fps

Sensor Specifications

- CMOS sensor
- 2560 x 1600 pixels
- 10 μm pixel size
- 25.6 mm x 16.0 mm
- 12-bit depth
- ISO Monochrome 6,400 D
- ISO Color 1,600 D
- TE cooled
- CAR in 256 x 8 increments
- Fill factor: 70%
- Dynamic range: 54.6 dB
- Read out noise at 20.6°C (typical): 21e-

- Full well capacity (typical): 11000e-

Exposure

- 1 us minimum exposure
- Global electronic shutter
- Extreme Dynamic Range (EDR)
- Auto Exposure
- Shutter Off mode for PIV

Memory

- 8 GB, 16 GB and 32 GB high-speed internal RAM
- CineMag compatible (128 GB, 256 GB, 144 GB, 512 GB)

Record Times

- 3.7 seconds at maximum frame rate, maximum bit depth, largest resolution and into maximum internal memory

Special Features

- Segment memory for up to 63 cines in multi-cine mode
- Continuous recording
- Frame rate profile
- Memory gate
- Event marking
- Frame timestamp (IRIG or SMPTE)
- IRIG in/out (modulated and unmodulated)
- Shutter off mode for PIV exposure
- 1.4 μ s straddle time
- Burst mode
- Standard internal mechanical shutter for automatic/remote Current Session Reference (CSR)
- Standard Image-Based Auto-Trigger (IBAT)
- Two 12 VDC, 1.5 A auxiliary power ports
- Secondary IP address
- Field-based firmware upgrade capable

Triggering

- Programmable trigger location (pre/post trigger recording)
- Image-Based Auto-Trigger
- Trigger from software
- Hardware trigger BNC

Timing and Synchronization

- 20 ns timing resolution
- Frame synchronization to internal or external clock (FSYNC)
- IRIG in/out (modulated or unmodulated)
- SMPTE timecode at support frame rates
- Ready output
- Strobe output
- Genlock

Signaling

- Dedicated FSYNC, Trigger, Timecode In and Timecode Out (SMPTE & IRIG) BNCs on camera body
- Range Data input on camera body (Fischer)
- Capture cable with Ready, Strobe, IBAT-Trigger, Pre-Trigger, Analog Video
- Additional signals, including Genlock, available with use of optional Break-Out-Box (BoB) Note: cannot use serial port on BoB and serial port on the camera at the same time. Powering the camera through the BoB using the standard AC power supply requires an adapter cable.

Ethernet Connection

- Gb Ethernet for both control and data
- 10 Gb Ethernet via CineStream X2SR

Camera Control

- Optional On-Camera Controls (OCC)
- Phantom Camera Control (PCC)

- Remote Control Unit (RCU), connects to Remote port
- SDK available

Video Out

- Analog video (NTSC or PAL) available on Capture Cable
- Component viewfinder port
- Versatile Dual HD-SDI can provide 4:4:4 video (except at 60 fps), or can be two single 4:2:2 HD-SDI ports, one for playback and one always live

Lensing

- Nikon F-mount standard, supports F & G style lenses
- Canon EOS mount optional
- PL-mount optional
- C-mount optional
- (lens not included)

Video Processing

- Selectable auto-scaling of 2560 x 1440 to 1920 x 1080 or 1280 x 720 on video out
- Brightness
- Gain
- Gamma
- Saturation
- Hue
- White Balance
- Color interpolation algorithm
- Filters
- Color matrix
- Image flip and rotate
- Crop
- Scale

Data Acquisition

- National Instruments M- and X-Series DAQ modules with integrated support in PCC

Motion Analysis

- Basic measurements via Phantom Application:
- Distance
- Speed
- Acceleration
- Angles and Angular Speed
- Manual and Automatic point collection for target tracking
- Compatible with 3rd party solutions

Supported File Formats

- Cine, Cine Compressed, Cine RAW, AVI, h.264 mp4, Apple ProRes .mov, Multipage TIFF, MXF PAL, MXF NTSC, Uncompressed QuickTime, Windows BMP, OS/2 BMP, PCX, TGA, TIFF, LEAD, JPEG, JTIF, RAW, DNG, DPX

Power

- 100 - 240 VAC, 220 Watt power supply included
- There are two DC inputs on the camera back panel for hot-swapping power or providing battery backup when using AC power

Mechanical Specifications

- Size (without lens, CineMag or handle): 11.5 x 5.5 x 5.0 inches (L x W x H); 29.2 x 14 x 12.7 cm
- Weight (without lens or CineMag): 11.75 lb; 5.33 kg

Environmental Specifications

- Temperature and Humidity: 0°C - 40°C @ 8% to 80% RH
- Shock: 30G, half sine wave, 11 ms, 10 times all axes (without CineMag or lens)
- Vibration: 25G, 5-500 Hz, all axes without CineMag

APIs

- Phantom SDK
- LabView
- MatLab

Ships Standard With

- Power supply
- Ethernet cable
- Capture cable
- Phantom PCC software
- Getting Started Guide
- Image-Based Auto-Trigger
- Internal Mechanical Shutter

Options

- CineMag interface
- Canon EOS lens mount
- PL-mount
- On-camera controls

Popular Accessories

- CineMag
- CineStation
- RCU
- CineStream
- Break-out-Box (IRIG-in, IRIG-out, NTSC/PAL Video, Trigger, Event, Strobe, A-Sync, Pre-Trigger/Memgate, Ready, GenLock)

Downloads

 [Mechanical Drawing](#)

 [Spectral Response Curve With Blue Filter](#)

Spectral Response Curve Without Blue Filter

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