IOI
IO INDUSTRIES

DVR Recorders for Professionals

Multiple camera recording – exposure synchronisation alignment – Image Timestamp – High capacity storage Solid State Media

Express Core 2 DVR:
Recording up to four cameras simultaneously into ultra-fast solid state VidIO Drive Modules at data rates up to 1620 MB/s.

Rodeo DVR:
Ultra-compact, rugged, video recorder, designed for RAW recording from high-performance video cameras. at rates over 2 GBytes/sec.

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DVR EXPRESS®
CORE 2

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Multi-Camera Uncompressed Digital Video Recorder

APPLICATIONS

High Speed Event Analysis

Industrial Process Troubleshooting

Multi-Camera Motion Capture

Stereo and 3D PIV/PTV

FEATURES INCLUDE:

· Reliable uncompressed video recording from
  Camera Link, CoaXPress or SDI video sources
· Long recording durations at high frame rates
· Live video display during recording
· Precise time stamping and synchronization
· Rugged, low-power and light-weight design
· Connects easily to laptops or PCs via USB 3.0
· Includes easy-to-use CoreView™ software
· Optional SDK for programmers

EXAMPLE SYSTEM

· Record up to (4) cameras with Camera Link Base, Medium, Full or Full 80-bit output formats and clock rates up to 85MHz
· Area and Line Scan camera types supported
· Power over Camera Link (PoCL) provided on all ports
· CORE2CLPLUS model has bidirectional ports allowing pass-through repeat features as well as output of recorded video over Camera Link, simulating up to (2) CL-Base cameras at once or (1) CL-Full camera
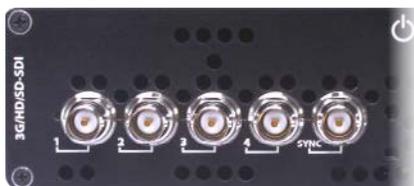
	Supported Camera Link Connections			
Model	Base	Med/Full	Base In/Out	Med/Full In/Out
CORE2CL	4	1	n/a	n/a
CORE2CLPLUS	4	2	2	1

· Records up to (4) cameras with CoaXPress single-link, dual-link or quad-link interfaces with link rates up to CXP-6
· Area and Line Scan camera types supported
· Power over CoaXPress (PoCXP) provided on all ports when 24V AC adapter used (P/N COREPWRCXPxx)
· CORE2CXPLUS model supports four links at up to CXP-6 speed but the total readout rate must be reduced – contact IO Industries for more details and configuration suggestions

	Supported CoaXPress Connections		
Model	Single-Link	Dual-Link	Quad-Link
CORE2CX	4 (up to CXP-3)	2 (up to CXP-3)	n/a
CORE2CXPLUS	4 (up to CXP-6)	2 (up to CXP-6)	1 (up to CXP-6)

· Records up to (4) single-link SDI video sources simultaneously
· Flexible support for SD-SDI, HD-SDI or 3G-SDI connections
· Supported formats include SD, HD, 2K, UHD and 4K up to 60p
· Records SMPTE metadata (HANC/VANC) from each SDI link including embedded audio channels or KLV data packets
· Bidirectional ports allow dual-input/dual-output mode for (2) single-link cameras or (1) dual-link camera

	Supported SDI Connections				
Model	Single-Link	Dual-Link*	Single-Link In/Out	Dual-Link* In/Out	Quad-Link*
CORE2SDI	4	2	2	1	1

*Dual-Link and Quad-Link connections support UHD/4K formats only

easy-to-use dialog for recording one or more cameras with one or more DVRs

embedded camera control dialog for Flare™ cameras and ASCII terminal for generic cameras

simple VTR-style operator controls

multiple video display windows

high-precision time stamps

pan and zoom displayed video or fit to window

seek to individual frames

Side

324.7 [12.8]

28.6 [1.13]

256.9 [10.11]

M4 x 0.7

Front

165.0 [6.5]

51.6 [2.0]

Supported Video Data Rate:
· Up to 1620 MB/s

Video Storage Media:
· Removable Drive Shuttle with up to (4) IO Industries VidIO Drive Modules (solid state media)
· Up to 30TB capacity

Connection to Control Computer:
· 6Gb/s eSATA (USB 3.0 adapter included)
· Required for configuration and operation
· Allows live video display, post-recording playback and video export to local storage

Recording Format:
· Uncompressed (IO Industries file system)
· Images or clips can be exported to common file types using control software (AVI, BMP, JPG, TIF, RAW, etc.), archived to backup format, or accessed via SDK

Control Software:
· CoreView™ or Streams™ 7 (SDKs available)

System Requirements:
· Windows 7/8.1/10 32/64-bit
· Ubuntu 16.04 LTS 32/64-bit
· Available eSATA or USB 3.0 port

Time Stamping:
· High-precision time stamp per frame
· Time stamps can be synchronized to external IRIG or GPS time code receiver

Multi-DVR Synchronization:
· Master/Slave configuration allows time reference distribution and synchronizes recording start/stop across multiple DVRs

Auxiliary Signal Input/Output:
· (6) Bi-directional TTL I/O
· (2) LVDS inputs and (2) LVDS outputs
· (1) Remote On/Off

Mechanical / Electrical / Environmental

Dimensions:
· 325 x 165 x 52mm (12.8 x 6.5 x 2")

Weight:
· Approx. 1.7 kg* (3.8 lbs)

Construction:
· Anodized aluminum

Power:
· 14-25V DC, Approx. 25W*

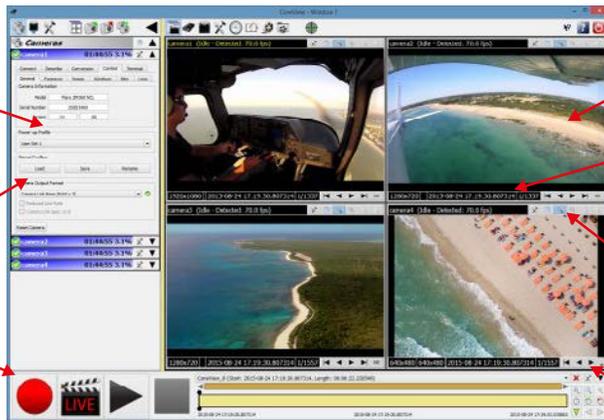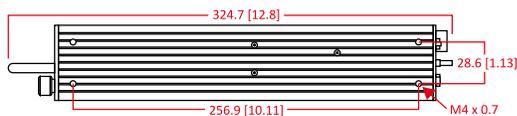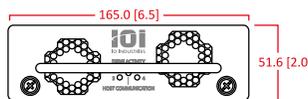**Temperature:**
· Operating: 0° to 45°C
· Storage: -20° to 60°C

*Depending on model and installed media

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RODEO™ VIDEO RECORDER

Records high-performance cameras at...
the Studio, Stadium, Laboratory or Test Range

APPLICATIONS

Multi-Camera Motion Recording

Volumetric Video Capture

4D Face/Body Scanning

Athletic Motion Recording

Test Range Recording

Industrial Troubleshooting

FEATURES INCLUDE:

- Records from IOI or third party cameras with CoaXPress video interface
- Reliable FPGA-based recording to internal SSD
- 10 Gigabit Ethernet (copper/fiber) for control, video streaming and high speed file download
- Low-latency SDI live video output
- Compact one-piece rugged design
- Intuitive software to easily connect, control and synchronize multiple DVRs and cameras

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SPECIFICATIONS

Video Input	CoaXPress video from a single camera via 1/2/4 coaxial connections (max. 12.5 Gbps per link, max. 25 Gbps total).
Internal Recording	Lossless-compressed RAW recording to internal SSD (up to 1920GB capacity).
File Format	Recordings can be exported to uncompressed .DNG files or lossless-compressed .IOI files.
10 Gigabit Ethernet	Fast network interface for DVR/camera configuration, recording control, live and playback video streaming, and high-speed file transfer. SFP+ port allows various connectivity options including optical fiber or copper cabling.
SDI Video Output	Live video monitoring via 12G/6G/3G/HD-SDI, supports UHD/HD up to 60fps.
PTP Synchronization	IEEE1588 Precision Time Protocol can be used for frame timestamping and camera exposure synchronization.
SMPTE LTC Input	LTC reference can be used for frame timestamping and camera exposure synchronization.
Tri Level Sync Input	SMTPE HD sync reference can be used for camera exposure synchronization.
Additional I/O	TTL input/output (2-in, 3-out) for interaction with nearby devices, remote recording control, etc.
Control Software	IO Industries StudioCap-VC software or custom-developed application using StudioCap-VC SDK.
Mechanical/Electrical	
Dimensions / Weight	60.2 mm (W) x 62.0 mm (H) x 124.3 mm (D), 590g
Power Requirements	12V DC, approx. 14W plus power for camera via PoCXP (up to 26W). Universal AC Adapter available (RODEOPWR).
Operating Temperature	0℃ to 30℃, 20-85% humidity (non-condensing).

SAMPLE CONFIGURATION

CXP Camera (IOI or third party) — Rodeo DVR — SDI — 10GbE — 10GbE Switch — SDI Display (optional) — 40GbE / 100GbE (or faster) — PTP Grandmaster (optional) — Storage Server (video archive) — Control Station with StudioCap-VC client software

MECHANICAL DIAGRAMS

Front — 62.0, 60.2, 1 PoCXP, 2 CXP, 3 CXP, 4 PoCXP

Top/Bottom — 60.2, 52.6, 30.1, 7.6, 4.8, (1x) 1/4"-20 - Top/Bottom Only, (2x) M3 x 0.5 - Top/Bottom Only, (4x) M2.5 x 0.45 - Top/Bottom Only, 56.9, 54.3, 3.3, 5.9, 64.6, 120.1, 124.3

Rear — RS-485, POWER (12V DC), AUX, IOI IO INDUSTRIES, LTC, DRIVE, SYNC, 10GigE, STATUS, SDI

ORDERING

Part Number	Description
RODEOCX	DVR, Rodeo, CoaXPress, Single Camera
-VC	Optional embedded software license for IO Industries' Studiocap-VC, 1 year maintenance
RODEOPWR	AC Power Adapter (Universal), for Rodeo models
CABRODEOIO	Cable, I/O Breakout to (2) BNC, for Rodeo models

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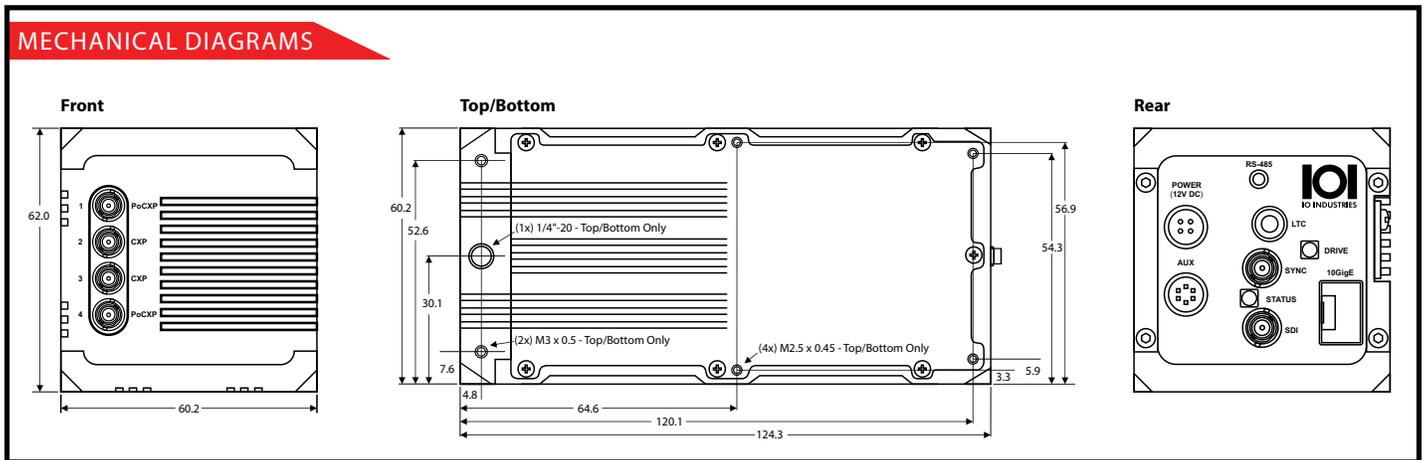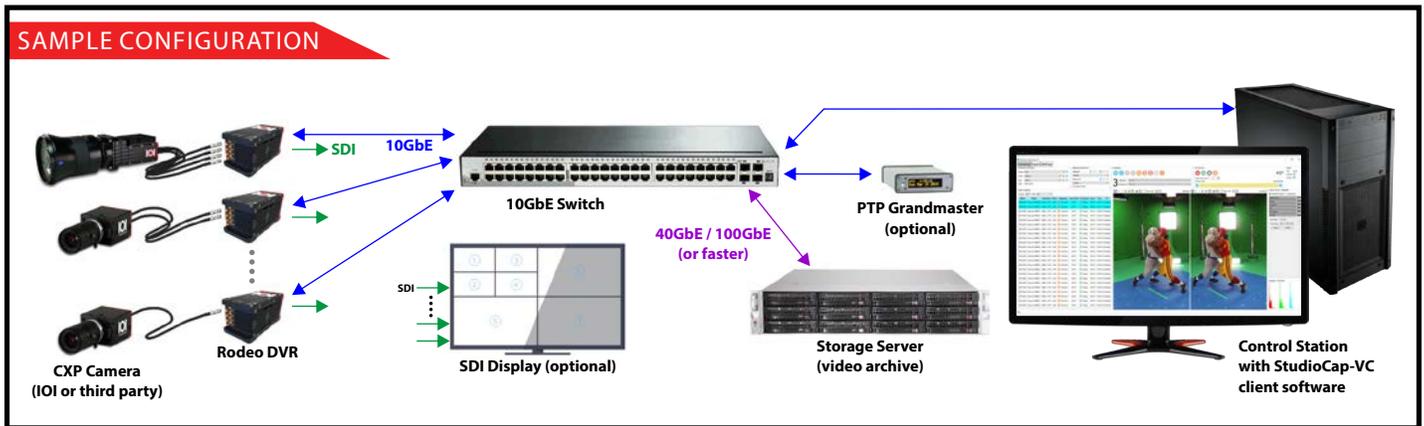
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