Video Capture Solutions

Video Capture Products & Industrial Camera

IEI provides complete video/audio capture solutions to fullfill the demands of various applications. IEI capture cards and boxes can compress and decompress full high-definition video in H.264 format in real time. The products enable recording, decoding and streaming HD video with high quality in the application of video streaming, distance education, broadcasting, medical video streaming and recording from the operating room, and game recording.

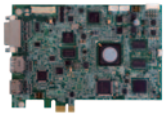
H.264 Hardware Compression Video Capture Products

1080p30 Full HD

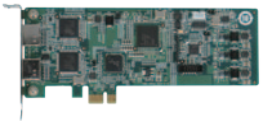

HDB-301L

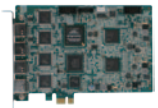

HDC-301MS

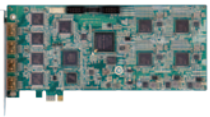

HDC-301EL


HDC-701EL

1080p60 Full HD

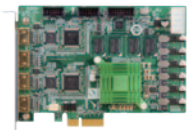

HDC-301E


HDC-302E


HDC-304E

Uncompressed 4K/HD/SD Video Capture Products

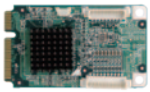
Ultra HD


HSRC-302E

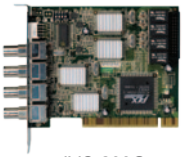
Full HD


HDB-301R

SD


IVCME-C604


IVCE-C608


IVC-200G


PM-1056

Industrial Camera


HSC-03M2-O

IEI Join AIA Association

To ensure IEI can develop the new industrial camera product line with advance technologies, IEI join the AIA Machine Vision Trade Association to get the world's leading resoruce for vison and imaging information. IEI industrial cameras will support USB3 Vision Standard and include a methodology for interoperating with machine vision software applications.

aia advancing VISION+IMAGING MEMBER

Video Capture Product Lines

Video Processing	Recording Format	Video Input Channel	Interface					
			PCIe	PCIe Mini	USB 2.0	USB 3.0	PCI	PCI-104
Hardware Compression	H.264 1080p60	1ch HDMI	HDC-301E					
		2ch HDMI	HDC-302E					
		2ch SDI	HDC-502E					
		4ch HDMI	HDC-304E					
	H.264 1080p30	1ch HDMI	HDC-301EL	HDC-301MS	HDB-301L			
		1ch HDMI/DP/DVI/YPbPr	HDC-701EL					
Software Compression	By software	4ch NTSC/PAL	IVCE-C604	IVCME-C604			IVC-200G-RS	PM-1056
		8ch NTSC/PAL	IVCE-C608					
Uncompressed Video	By software	1ch HDMI				HDB-301R		
		2ch HDMI	HSRC-302E					

H.264 Hardware Compression Video Capture Solution

Diversification

IEI video capture solution includes hardware compression products, software compression products and uncompressed video capture products. HD video can be compressed to 1080p60 or 1080p30 by different products. In addition, IEI provides different types of video capture products, including cards and boxes, with a variety of interfaces such as PCIe, PCIe Mini, USB 2.0 and USB 3.0. Uncompressed video supports from NTSC/PAL to full HD and 4k video signal.

Compatibility

IEI video capture products are compatible with most of the industrial motherboards and HP ProLiant servers. There are a lot of Linux versions in the world. IEI can help to provide correct drivers for you to use IEI video capture products. Furthermore, IEI can offer you the source code to develop your UI and application under specific agreement. IEI's video capture products are the perfect choice to build up your encoder system or solution.

High Compression Ratio

HD video/audio media data can occupy huge storage capacity. For example, an uncompressed full HD video with bitrate of 1920 x 1080 @ 60 fps (RGB 8-bit color) occupies about 373 MB/s (2.99 Gbps) of storage. With the IEI HDC series capture cards, HD data could be compressed through hardware codec, therefore being beneficial for storage usage, cost saving and transmission bandwidth in various applications.

1920 x 1080 x 3 (R.G.B.) x 60 frame/sec. = 373.248 MByte
Compressed video with encoding bit rate range from
30 Mbps to 2 Mbps (3.75MB to 0.25MB)

Take 30-minute full HD video recording as an example. The uncompressed video is 671 GB, while the compressed video encoding with 0.25 MB (2 Mbps) bit rate is only 450 MB.

671 GB HDD with uncompressed file
VS
450 MB HDD wiht compressed file

Saving around 99% of movie storage space

	Un-compressed	Compressed			
Encoding Bit Rate	373 MB	0.25 MB (min.)	1 MB	2 MB	3.75 MB (max.)
1 TB HDD Capacity	0.75 hr	1108 hrs	277 hrs	139 hrs	74 hrs
30-minute Full HD Video Recording	671 GB	450 MB	1.8 GB	3.6 GB	6.75 GB

Applications: H.264 Video Encoder through HDC Series Capture Cards

Video on demand (VoD)

Distance Education/Training

An educational model is that the student and the teacher are in locations different from one another while the instruction is taking place. Ideal for this kind of education, the capture cards allow real-time capture or composition of two input sources, typically a live instruction with a powerpoint presentation.

Sport/Game Broadcasting

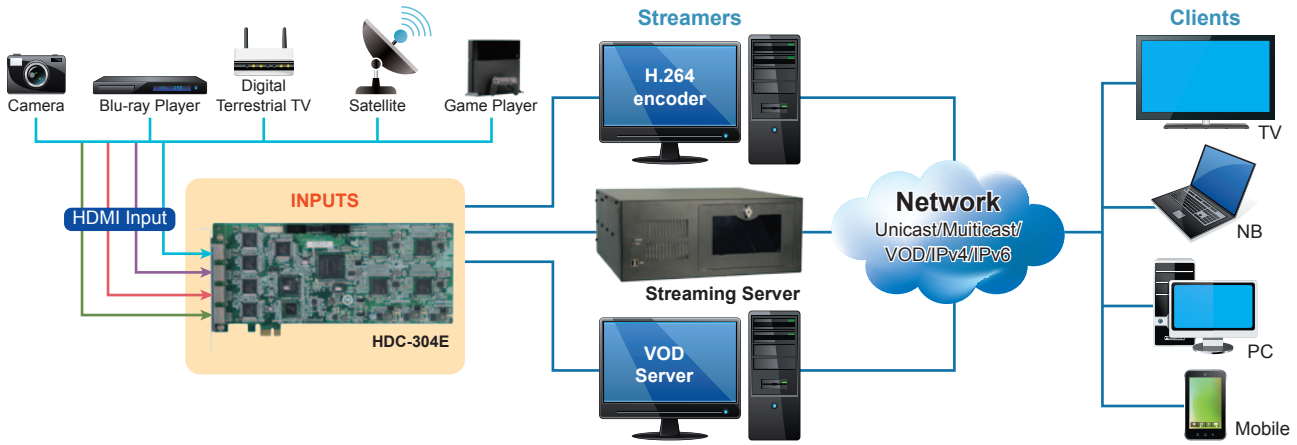
The broadcasting of sport/game events is the coverage of sports/games as a television program. Spectators can engage in live conversations using broadcasting media. Through HD capture and broadcast, there is no virtually impact on the sport/game performance.

Traffic Broadcasting

The traffic systems now provide more informative and communicative broadcasting program that improve transport outcomes such as transport safety, transport productivity, travel reliability etc. Traffic media in vehicles or transportation is getting popular since wireless environment is getting mature.

Streaming Solution

H.264 video encoder can be the part of streaming server system architecture



Medical HD Video Recording

Endoscopy Surgery

Endoscopy typically refers to looking inside the body for medical reasons using an endoscope. Unlike most other medical imaging devices, endoscopes are inserted directly into the organ or incision. Clear and detailed image is necessary for precise operations.

Ultrasound Scanner

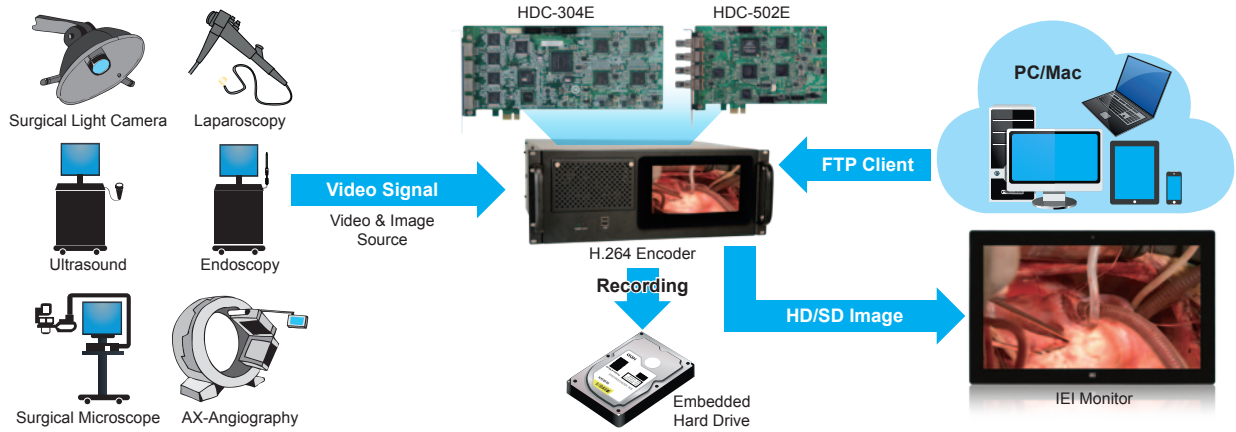
An ultrasound scanner can be used for most imaging purposes. Usually specialty applications may be served only by use of a specialty transducer. Most ultrasound procedures are done using a transducer on the surface of the body, but improved diagnostic confidence is often possible if a transducer can be placed inside the body.

Microscope

Microscope is an instrument used to investigate objects that are too small for the naked eye. Recently, electron microscopic captures and displays the image through electric devices that allow people to see objects in detail.

Medical Video Solutions

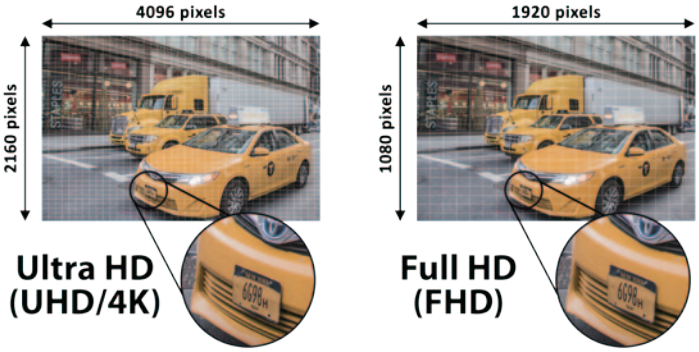
H.264 video encoder can be the recording part of medical video system architecture

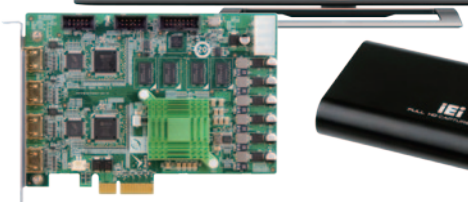


Uncompressed 4K/HD/SD Video Capture Solution

4K is a new resolution standard designed for digital cinema and computer graphics. It has following advantages: higher image definition quality, more detailed picture, better fast-action and larger projection surface visibility. Recently, many camcorder manufacturers adopt 4K resolution to their recordings like Sony, Panasonic and so on.

IEI 4K uncompressed video capture card can import video from 4K camcorder into your media editing software on PC. It's the best and most efficient way to work 4K videos with your editing software.





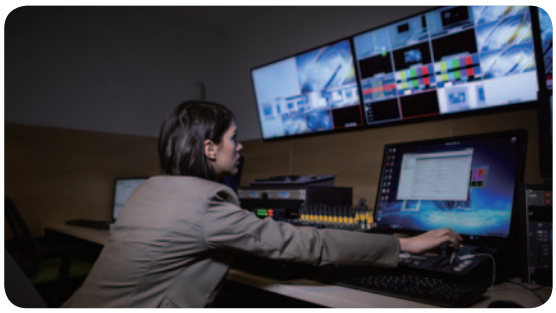
Uncompressed 4k video capture card - HSRC-302E

Uncompressed Full HD video capture box - HDB-301R

4K Video Capture Application: Upgrade from SD to 4K Resolution

Post-production

IEI HSRC-302E is the 4K video capture and playback card, supporting editing and video software which is compatible with DirectShow. You can do the real-time workflows in editing software while connecting 4K camcorder to IEI 4k uncompressed video capture card. HSRC-302E is a perfect part of your workflow!



4K Medical Video Identification

Medical devices, including microscopes, endoscopes, true HD cameras, vision microscopes etc, are all going in the direction of 4K Ultra HD resolution. IEI 4K uncompressed capture card will be the perfect choice of your 4K medical video systems.

4K Video Surveillance

Improved quality of video surveillance

4K has several advantages in terms of video quality and resoultion. More pixels added into the image allow the users to zoom into the picture without sacrificing image quality, therefore making this technology optimal for security. Covering a large warehouse or busy hallways would be easier with the added resolution. The IEI 4K uncompressed video capture card with smart surveillance software could be used in the applications like airports, shopping malls, mega stores and so on.

One 4K camera with IEI 4K uncompressed video capture card can help magnify and positively identify small details like a face, an unattended package or a car license plate.

SD Video Capture Applications

Intelligent Transportation Systems (ITS)

Providing timely information on highway traffic conditions is a major function of intelligent transportation systems (ITS), and video surveillance systems are critical tools for ITS to monitor and control any emergency evacuation events.

The toll road payment stations process large numbers of micro transactions. The surveillance system minimizes frauds by recording all transactions including those carried out by potential gatecrashers.

Automotive Video Surveillance

Automotive video surveillance is now widely used to monitor vehicle interiors on public transportation systems to ensure the passenger safety. Automotive video surveillance systems can record the interior of trains, cars and buses, and can also be adopted in police vehicles to monitor patrol activity.

Banking Security System

In a bank, the surveillance system can easily monitor a teller line and automated teller machine transactions. Bank surveillance systems can also record robberies, unauthorized withdrawals, and other disputed transactions.

Building, Airport, Road Surveillance System

Video surveillance has emerged as a vital technology in the war against terror. Video surveillance enables the easy identification of culprits behind terrorist bombings. As a result, since 911, governments around the world have started to leverage high-performance surveillance equipments in their efforts to protect their country and people from terrorist attacks.

Industrial Automation

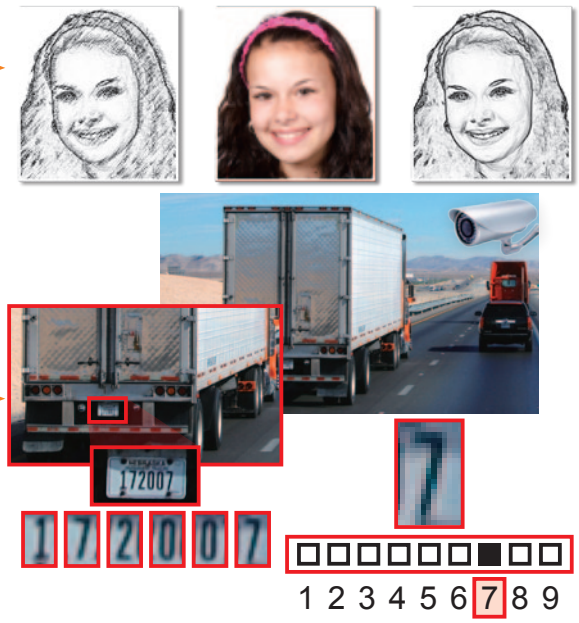
Latest Supervisory Control And Data Acquisition (SCADA) systems adopt video capturing technologies to collect factory data and thereby provide operators and supervisors with access to real-time data and video feeds which enable them to make increasingly accurate assessments faster.

Benefits

The software compression card is used to transfer analog NTSC/PAL signal to digital raw data signal. The uncompressed raw data can provide better video quality without distortion. It is useful for real-time video surveillance applications. The software compression process is first transferring data into PC through PCI or PCIe interface, then the CPU compresses the video and stores it in the HDD. Since compression and de-compression are handled by the CPU, the software compression card needs a more powerful hardware requirement.

Raw video capturing data

Video Analytics

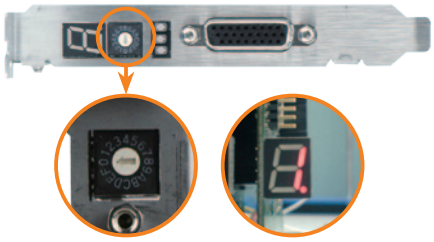


Standard Definition Compression Capture Card

Multiple Card with Digit LED Card ID Support

◆ One Digit LED for Card Identification (ID)

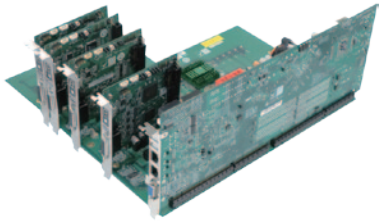
Because the IEI IVC series supports multiple IVC cards, users need to know which card is related to which device name in the Device Manager of Windows 7. Each IVC card provides one digit LED to show its ID (identification), and the ID is programmed by a rotate switch. The IEI IVC SDK also provides an application programming interface (API) to get device name and the demo application software shows how to display device names on screen. The advantages are for ease of maintenance and debugging. When a display channel malfunctions, the users can quickly find out which IVC card should be checked for error via the device name and LED ID.



The ID is programmed by a rotate switch

◆ Multiple Card Support

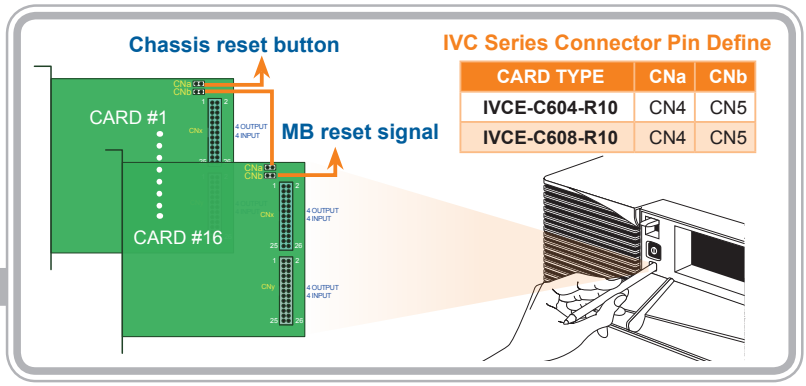
The IEI IVC series is designed to support multiple IVC cards in a system. Its driver can recognize and support multiple IVC cards plugged into a system. The limitation of how many IVC cards can be plugged into a system is dependent on system resources such as CPU performance, interface bandwidth, and number of available IRQs.



Multiple Card Cascade Reset

◆ One Bottom Cascade Reset

The latest IEI software compression capture card (IVC series) provides multiple card cascade reset function. It can enable system restore via external hardware reset button when system failure occurs.

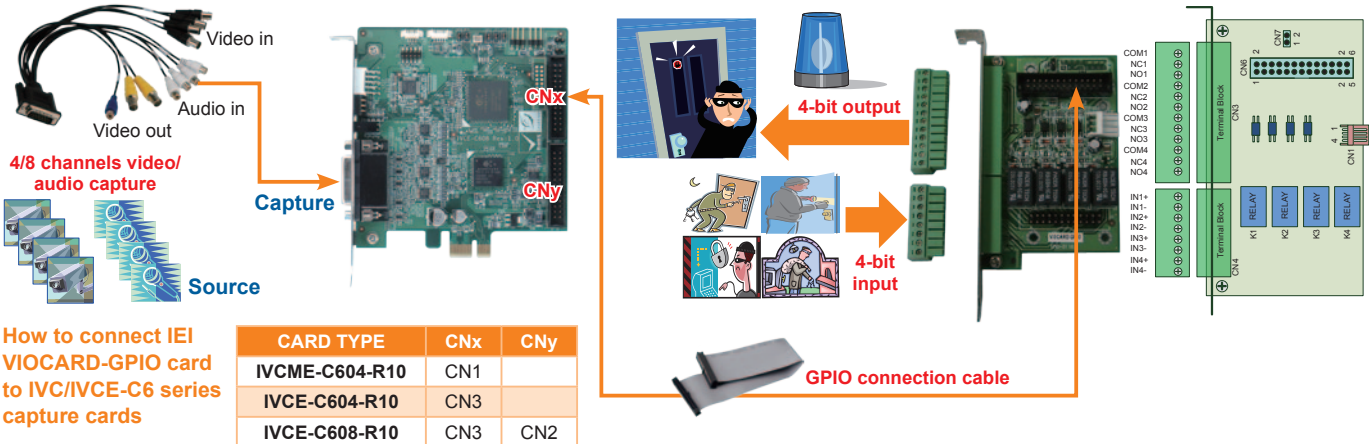


CARD TYPE	CNa	CNb
IVCE-C604-R10	CN4	CN5
IVCE-C608-R10	CN4	CN5

GPIO Alarm

◆ Optional GPIO Port Support

The optional IEI VIOCARD-GPIO card provides 4-bit alarm input and 4-bit alarm output with normal open relay. It is compatible with IVC software compression capture card to connect with external I/O sensors.



How to connect IEI VIOCARD-GPIO card to IVC/IVCE-C6 series capture cards

CARD TYPE	CNx	CNy
IVCME-C604-R10	CN1	
IVCE-C604-R10	CN3	
IVCE-C608-R10	CN3	CN2

Video Capture Software

IEI provides a test suite with SDK usage for Conexant solutions. The program demonstrates the following functions:

- Card ID and selection
- Video and audio capture settings
- Frame rate information and color property adjustment
- GPIO, WDT, video out and general settings