

SELECTION
GUIDE

SECURITY SURVEILLANCE PRODUCTS

Q1/Q2 2013



INTERSIL.COM

intersil[™]

SIMPLY SMARTER[™]

Intersil's Security Surveillance Solutions

Industry leader providing complete security system solutions

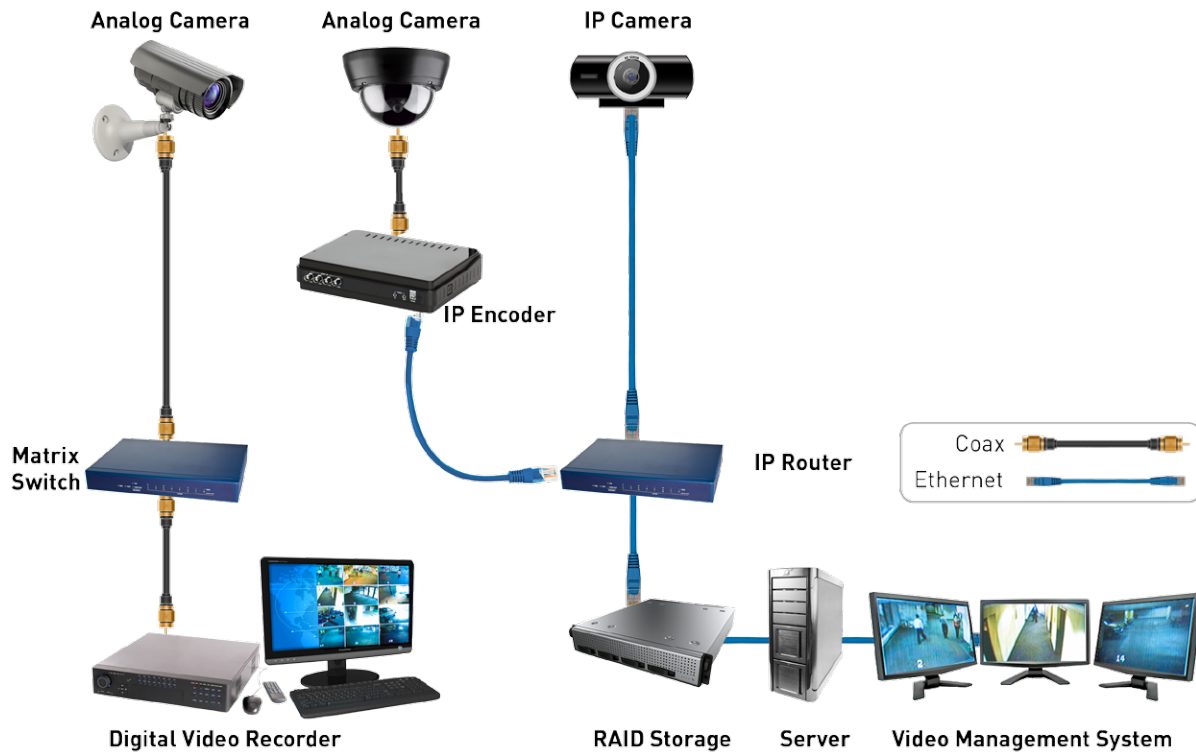
Intersil Techwell pioneered the security surveillance market with analog video decoders providing the highest video quality and the best weak signal performance that to this day remains unchallenged. Intersil Techwell continues to build on our extensive video signal processing expertise and our deep surveillance system domain knowledge to develop and deliver IC products for the Digital Video Recorder market, the Network Video Recorder market and the IP Camera market. With Intersil Techwell's broad security product portfolio, system

expertise, and local dedicated support, you can feel confident your next generation security solution will get to market on time, with advanced features and at a cost effective price.

Intersil Techwell Technology Leadership Highlights

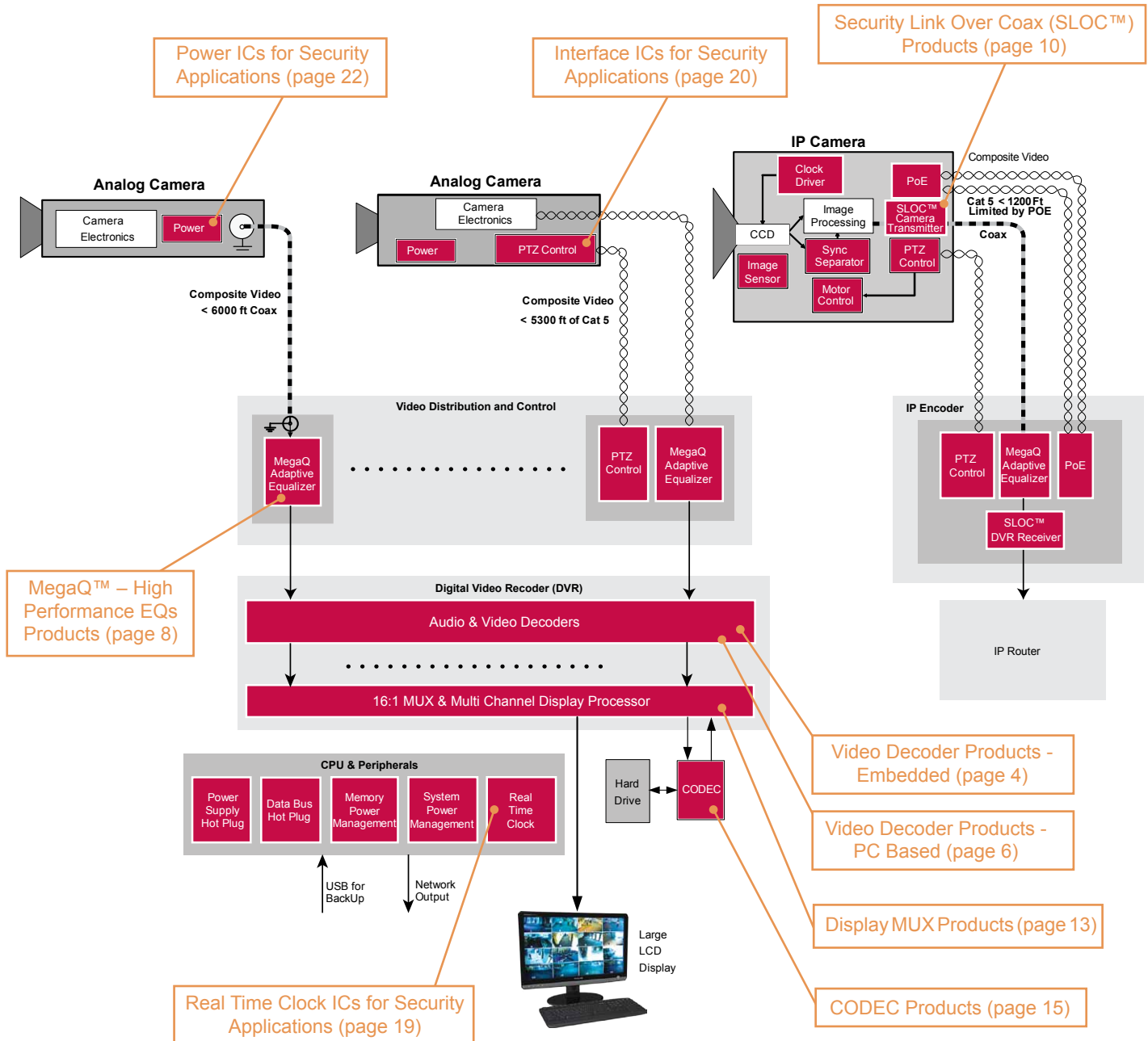
- First to market with 960H video decoder
- First to create mixed analog and IP over coaxial transmission technology (SLOC)
- First to achieve over a mile long composite video equalization with MegaQ™ adaptive equalizer

Conventional Surveillance System



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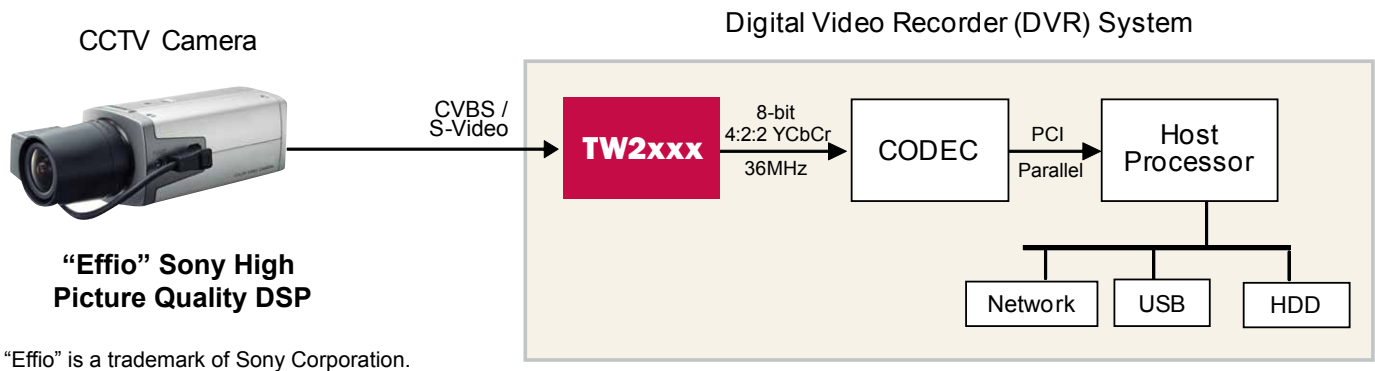
Conventional Surveillance System Block Diagram

Video Decoder Products - Embedded

Today, the majority of security cameras are still NTSC/PAL analog based. Being the leader in video interface technology, Intersil Techwell provides a comprehensive portfolio of analog video decoder products ranging from D1 resolution to WD1(960H) resolution to meet various channel needs in Digital Video Recorder(DVR) design. Below is a list of the latest video decoder business provided by Intersil Techwell.

Features and Performance Comparison

	TW2866	TW2867	TW2868	TW2964	TW2965	TW2968
# of Channels	4	4	8	4	4	8
Resolution Supported	D1	D1	D1	D1/WD1	D1/WD1	D1/WD1
Mixed Mode D1/WD1 Support	N/A	N/A	N/A	Yes	Yes	Yes
Video DAC for Spot	Yes	No	Yes	No	Yes	Yes
# of Audio Inputs	5-CH	5-CH	10-CH	5-CH	5-CH	10-CH
Sampling Frequency Support	27/54/108MHz	27/54/108MHz	27/54/108MHz	27/36/54/72/108/144MHz	27/36/54/72/108/144MHz	27/36/54/72/108/144MHz
Coaxial Cable PTZ Support	No	No	No	No	No	Yes



Quad 960H/760 Mixed Mode Video Decoders

TW2964

New!

4-CH WD1 (960H)/D1 Compatible Video Decoders and Audio Codecs**Video Decoder**

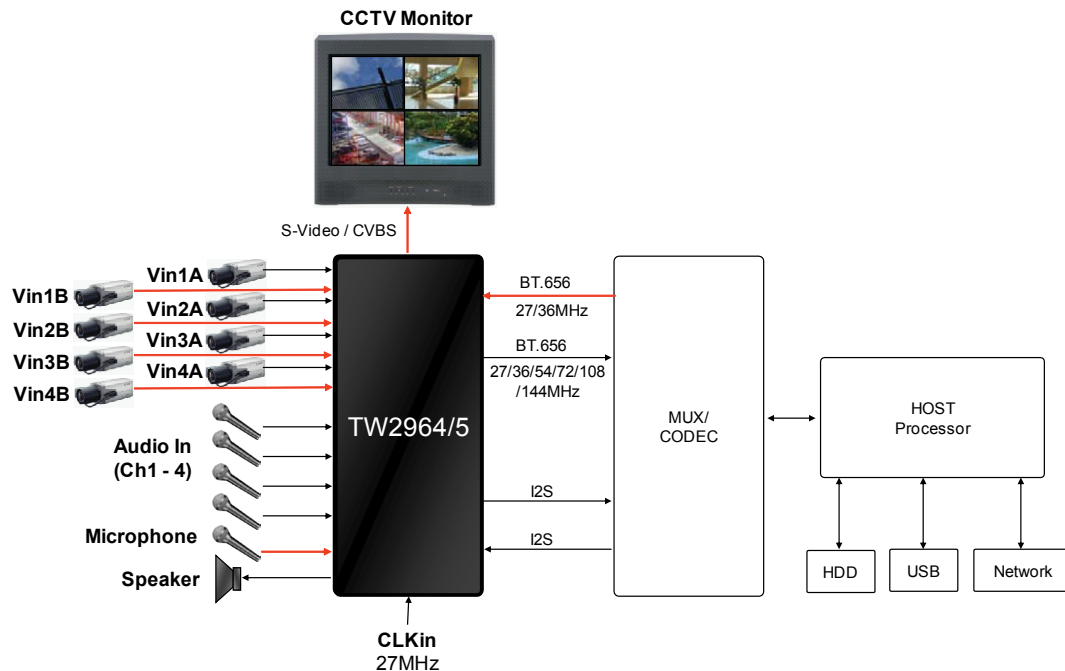
- WD1 (960H) and D1 compatible video decoding operation with individual channel programmability
- NTSC (M, 4.43) and PAL (B, D, G, H, I, M, N, N combination), PAL (60) support with automatic format detection
- Software selectable analog inputs allow any of 2 CVBS per one video ADC
- Built-in analog anti-alias filter
- Four 10-bit ADCs and analog clamping circuit for CVBS input
- Fully programmable static gain or automatic gain control for the Y channel
- Programmable white peak control for CVBS channel
- 4-H adaptive comb filter Y/C separation
- PAL delay line for color phase error correction
- Image enhancement with peaking and CTI
- Digital sub-carrier PLL for accurate color decoding
- Digital horizontal PLL for synchronization processing and pixel sampling
- Advanced synchronization processing and sync detection for handling non-standard and weak signal
- Programmable hue, brightness, saturation, contrast, and sharpness
- Automatic color control and color killer
- ITU-R 656 like YCbCr (4:2:2) output or time multiplexed output with 36/72/144MHz for WD1 or 27/54/108MHz for D1 format

Audio Codec

- Integrated five audio ADCs processing and one audio DAC
- Provides multi-channel audio mixed analog output
- Support I²S/DSP Master/Slave interface for record output and playback input
- PCM 8/16-bit and u-Law/A-Law 8-bit for audio word length
- Programmable audio sample rate that covers popular frequencies of 8/16/32/44.1/48kHz

Miscellaneous

- Two-wire MPU serial bus interface
- Integrated clock PLL for 144/108MHz clock output
- Power save and power down mode
- Low power consumption
- Single 27MHz crystal for all standards and both WD1 and D1 formats
- Pin compatible with TW2960 (supply voltage is different)
- 3.3V tolerant I/O
- 1.0V/3.3V power supply
- 100-pin LQFP package



Video Decoder Products - PC Based

To extend Intersil Techwell's leadership position in embedded video decoder market, a wealth of PC-based video decoder products were created to meet different embedded DVR system design needs.

Features and Performance Comparison

	TW6865	TW6869	TW6869H
# of Analog Decoder Channels	4	8	8
Analog Resolution Supported	D1	D1	D1
# of Audio Inputs	8-CH	8-CH	8-CH
Peripheral Interface	PCIe2.0	PCIe2.0	PCIe2.0
Application	Soft Encode	Soft Encode	Soft Encode
Industrial Temp	No	No	Yes

4-CH decoder w/PCIe

TW6865

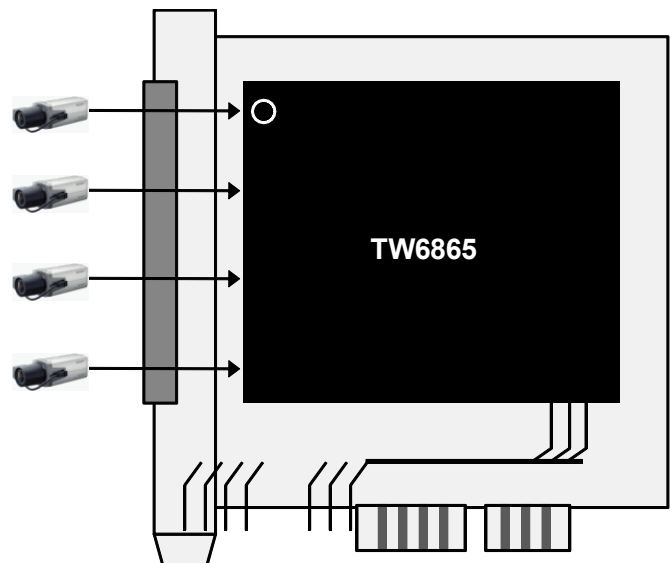


4-in-1 Video Decoders with PCI Express Media Bridge

Key Features

- 4-CH analog video decoder + 8-CH audio codec
- PCI express integrated (including PHY)
- Supports 4D1, real-time, full color (4:2:2) video via PCIe x1
- Full SDK available for Windows and Linux
- Samples and eval boards available now
 - Simple, small board design

TW6865 Block Diagram



8-CH decoder w/PCIe

TW6869

Multi-Channel PCIe Video Capture IC with Built-in 8-Channel Video and Audio Decoder

Key Features

- Internal 8-channel video decoder with 10 bit ADCs
- Internal 10-bit audio ADC with programmable sampling rate generation (8/16/32/44.1/48KHz)
- High quality proprietary fast video locking system for non-real-time application
- PCI express base specification 1.1 and 2.0 compliant
- Flexible PCIe packet size configuration: 128 byte, 256 byte, and 512 byte options
- Supports 8-channel D1 video plus 8-channel audio simultaneously with Independent channel control
- Dynamic synchronization video processing; and multiple video format output support: UYVY/Y422, UYYV/YUY2, Y420, IYU1/Y411, Y41P, RGB555 and RGB565
- Dual support for both Direct Show and Direct Draw

Video Decoder

- Accepts all NTSC (M/N/4.43) / PAL (B/D/G/H/I/K/L/M/N/60) / SECAM standards with auto detection
- Integrated eight video analog anti-alias filters and 10-bit COMS ADC's
- IF compensation filter for improvement of color demodulation
- Color transient improvement (CTI)
- White peak AGC control
- Programmable hue, saturation, contrast, brightness, and sharpness
- High quality proprietary fast video locking system for non-real-time applications
- High performance adaptive 4H comb filters for all NTSC and PAL standards

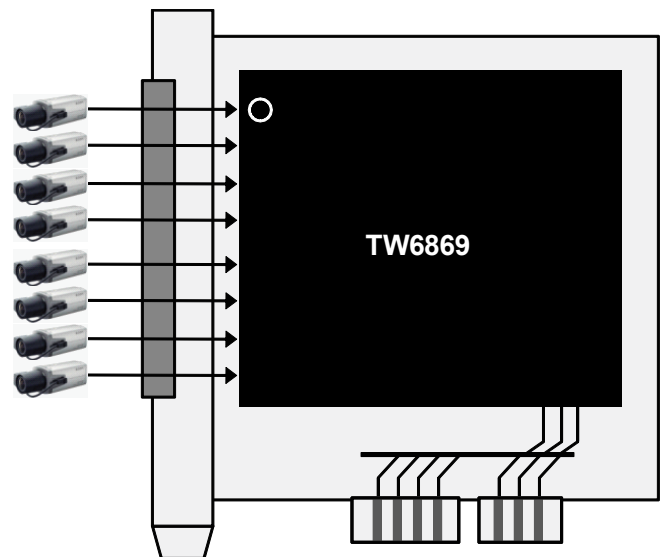
DMA Controller

- Highly efficient DMA design can support up to 8 real time D1 video and 8 real time audio channels, or up to 32 non-real-time channels with optimization of full PCIe x1 bandwidth
- Built-in motion detection engine for each video channel
- Hardware friendly design enables smooth data transfer

Order Information

- Part number: TW6869
- Package: 144-pin LQFP

TW6869 Block Diagram



What is MegaQ™?

1 Mile (1600m) Adaptive Composite Video Equalizer

MegaQ™ The ISL5960x are a family of single-channel adaptive equalizers designed to automatically compensate for long runs of Cat 5, Cat 6 and Coaxial cables, producing high-quality video output with no user interaction. The ISL59605 can compensate for up to 60dB of signal loss and can extend video transmission to 1 mile of Cat X or Coax cables.

Cable Type	Maximum Length Supported
Copper-Core	
Cat 5/Cat 5e	5300ft / 1600m
Cat 6	5600ft / 1700m
Coaxial - RG-59	6000ft / 1800m
Cat 2/Cat 3 (telephone wire)	3000ft / 900m
Belden IMSA Spec 39-2 581718 (3-pair traffic light cable)	5300ft / 1600m
Non-Copper-Core*	
Cat 5/Cat 5e (Copper-Coated Aluminum Core)	2000ft / 600m
Coaxial - RG-59 Copper-Coated Steel Core	1500ft / 450m

*Image quality will be significantly improved over unequalized cable, but there will still be some image smearing due to the high resistance of the core material.

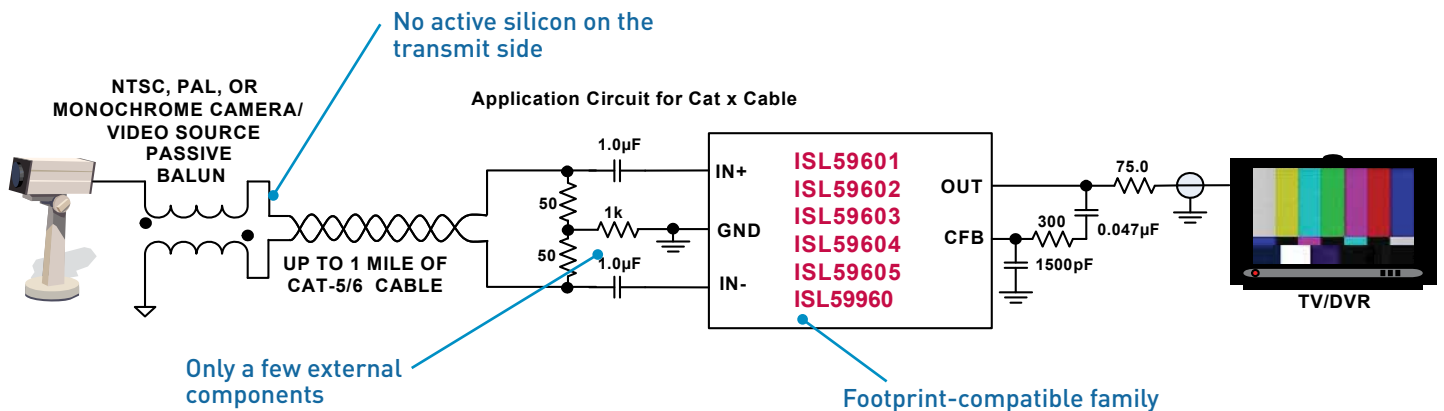
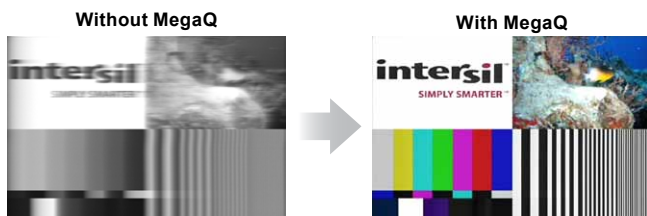
Key Features

- Equalizes composite video over 1 mile of Cat X or Coax cable
 - Automatic cable-type compensation
 - Automatic color/monochrome detection
 - Automatic NTSC or PAL support
 - Automatic polarity correction (inverts differential pair polarity if cable connected backwards)
 - No minimum length required
- Single-chip solution for fully automatic equalization
 - No user settings/adjustments necessary
 - Image quality is not dependent on the installer making adjustments
- Continuous mode adjusts for any variations in the system (such as temperature), whilst one of the Locking Modes can be used to freeze equalization in extremely noisy environments
- Receive-side-only solution
 - No active silicon is required on the transmit side


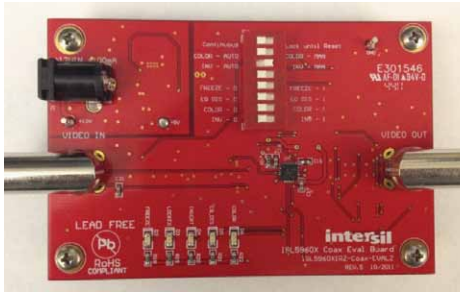
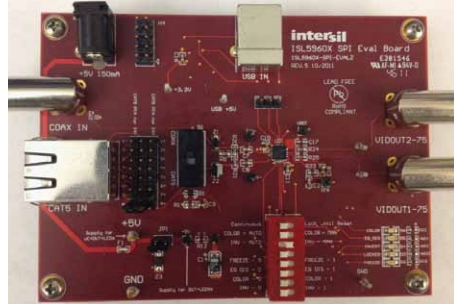
Adaptive Composite Video Equalizers

Part #	Cat 5 Cable Length
ISL59601	1000ft or 300m
ISL59602	2000ft or 600m
ISL59603	3000ft or 900m
ISL59604	4000ft or 1200m
ISL59605	5300ft or 1600m

Before and After: 5200 Feet of CAT5e



MegaQ Evaluation Boards

Cat x (UTP) Cable, 2 Layer Board	Coaxial Cable, 2 Layer Board	General-Purpose SPI Board
		
<p>ISL59605-Catx-EVZ (See App Note: AN1780) ISL59960-Catx-EVZ</p>	<p>ISL59603-Coax-EVZ (See App Note: AN1776) ISL59960-Coax-EVZ</p>	<p>ISL59605-SPI-EVALZ (See App Note: AN1775) ISL59960-SPI-EVALZ</p>

► To request an evalboard, please contact your local sales office or visit www.intersil.com

960H MegaQ™
ISL59960



An Automatic 960H and Composite Video Equalizer, Fully-Adaptive to 4000 Feet

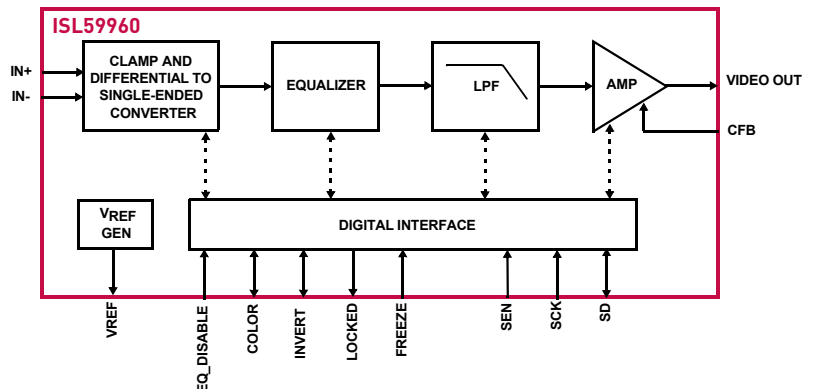
Key Features

- Equalizes both 960H and standard definition video
- Equalizes up to 1200 meters of Cat 5/6 and up to 1500 meters of RG-59 Coaxial cable
- Compatible with color or monochrome, 960H, NTSC or PAL signals
- Supports all fully automatic MegaQ™ functions
 - Fully automatic equalization – no user settings/adjustments necessary
 - Automatic cable-type compensation
 - Automatic color/monochrome detection
 - Automatic 960H, NTSC or PAL support
 - Automatic polarity correction (inverts differential pair polarity if cable connected backwards)
 - No minimum length required
- 100% pin and software compatible with the ISL5960x family
- Optional serial interface adds additional functionality

Key Specifications

- 9MHz -3dB bandwidth
- ±8kV ESD protection on all inputs
- Output drives up to two 150Ω video loads

Block Diagram



What is SLOC?

sloc™

Security Link Over Coax

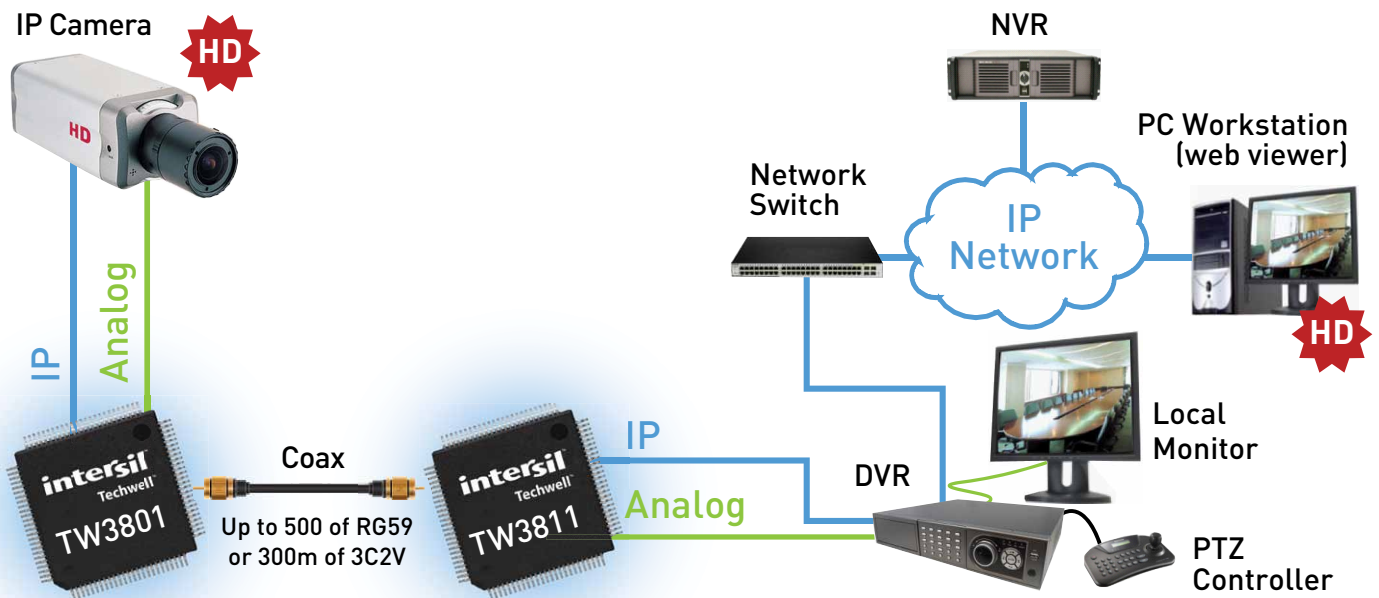
The Intersil Techwell SLOC™ (Security Link over Coax) solution is an advanced technology that simultaneously transmits analog CVBS

video and digital IP video over a single coaxial cable. Surveillance system manufacturers can now architect a cost effective hybrid surveillance system that supports latency-free analog CCTV functions as well as networked IP surveillance functions.

Key Benefits

- Extends IP camera distances up to 500m using RG59 coaxial cable, eliminating the need for repeaters
- Instant upgrade path from SD quality to HD and Mega-pixel resolutions
- Enables digital IP camera functionality with no disruption of existing CCTV services
- Embedded analog CVBS video enables latency-free live view and control of digital IP cameras
- Reusing coaxial cable infrastructure provides significant cost and resource savings

SLOC = Analog + IP



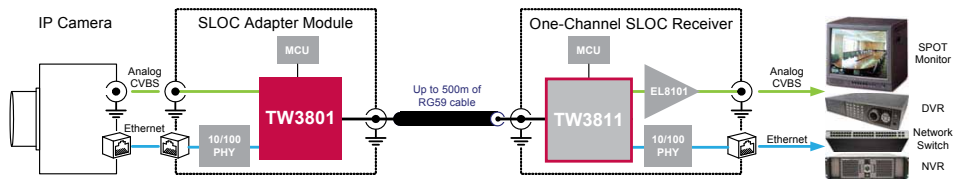
Camera/Tx
TW3801

Security Link over Coax™ (SLOC™) Transmitter

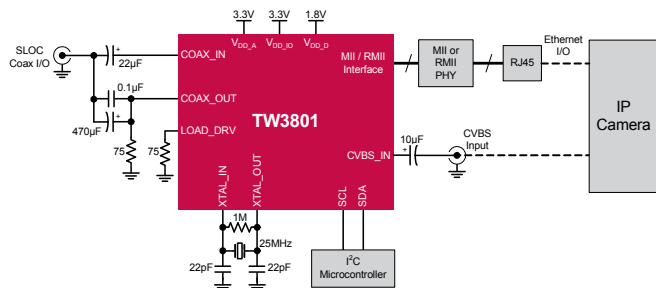
Key Features

- Simultaneous transmission of analog CVBS video & digital IP data over coaxial cables up to 500m
- Full-duplex digital communications
 - Downlink throughput up to 36Mbps (from camera to receiver)
 - Uplink throughput up to 11Mbps (from receiver to camera)
- Ethernet MAC MII interface for interfacing to camera processor DSP/SoC
- Ethernet PHY MII interface for interfacing to external Ethernet PHY chip
- I²C control interface
- Integrated PLL with 25MHz crystal interface
- 1.8V, 3.3V supplies
- 100-TQFP (12x12mm) package

Application Block Diagram



Simplified Application Schematic



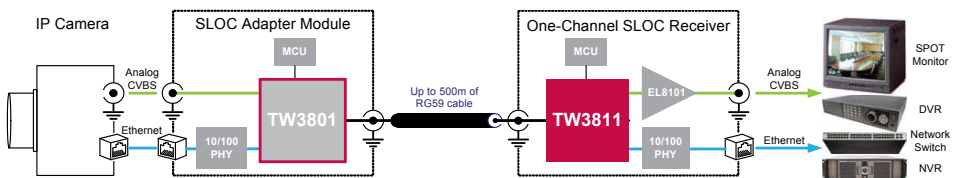
DVR/Rx
TW3811

Security Link over Coax™ (SLOC™) Receiver

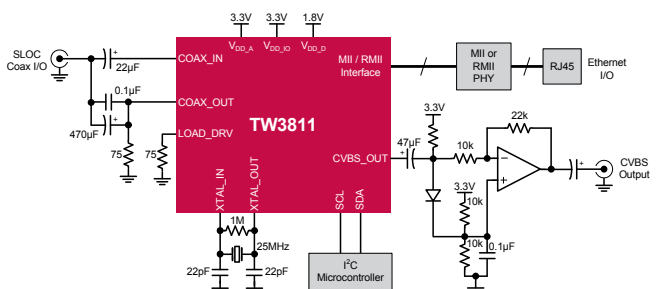
Key Features

- Simultaneous transmission of analog CVBS video & digital IP data over coaxial cables up to 500m
- Full-duplex digital communications
 - Downlink throughput up to 36Mbps (from camera to receiver)
 - Uplink throughput up to 11Mbps (from receiver to camera)
- Ethernet MAC MII interface for interfacing to DVR/NVR network processor SoC
- Ethernet PHY MII interface for interfacing to external Ethernet PHY chip
- I²C control interface
- Integrated PLL with 25MHz crystal interface
- 1.8V, 3.3V supplies
- 100-TQFP (12x12mm) package

Application Block Diagram

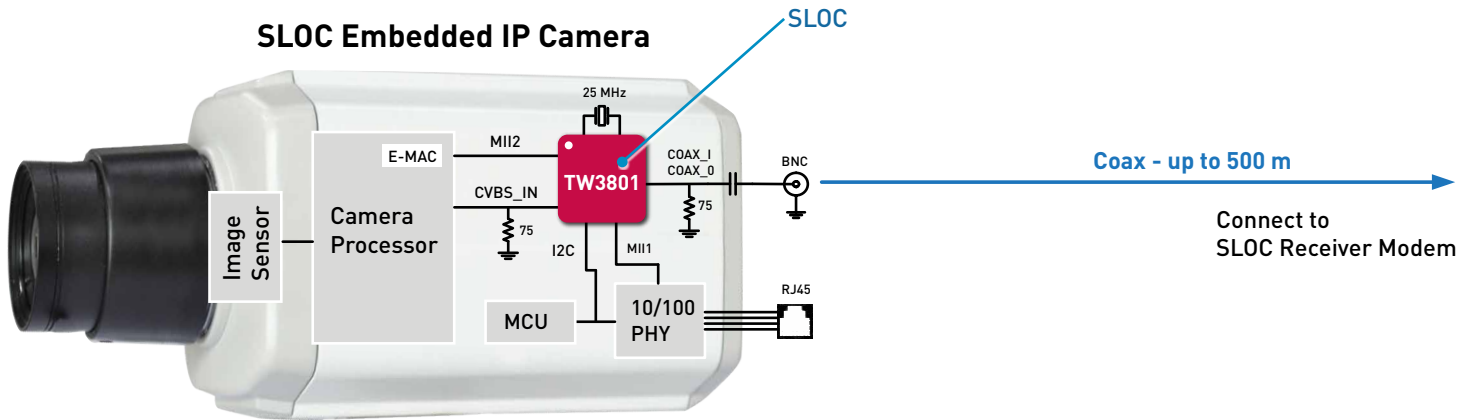


Simplified Application Schematic

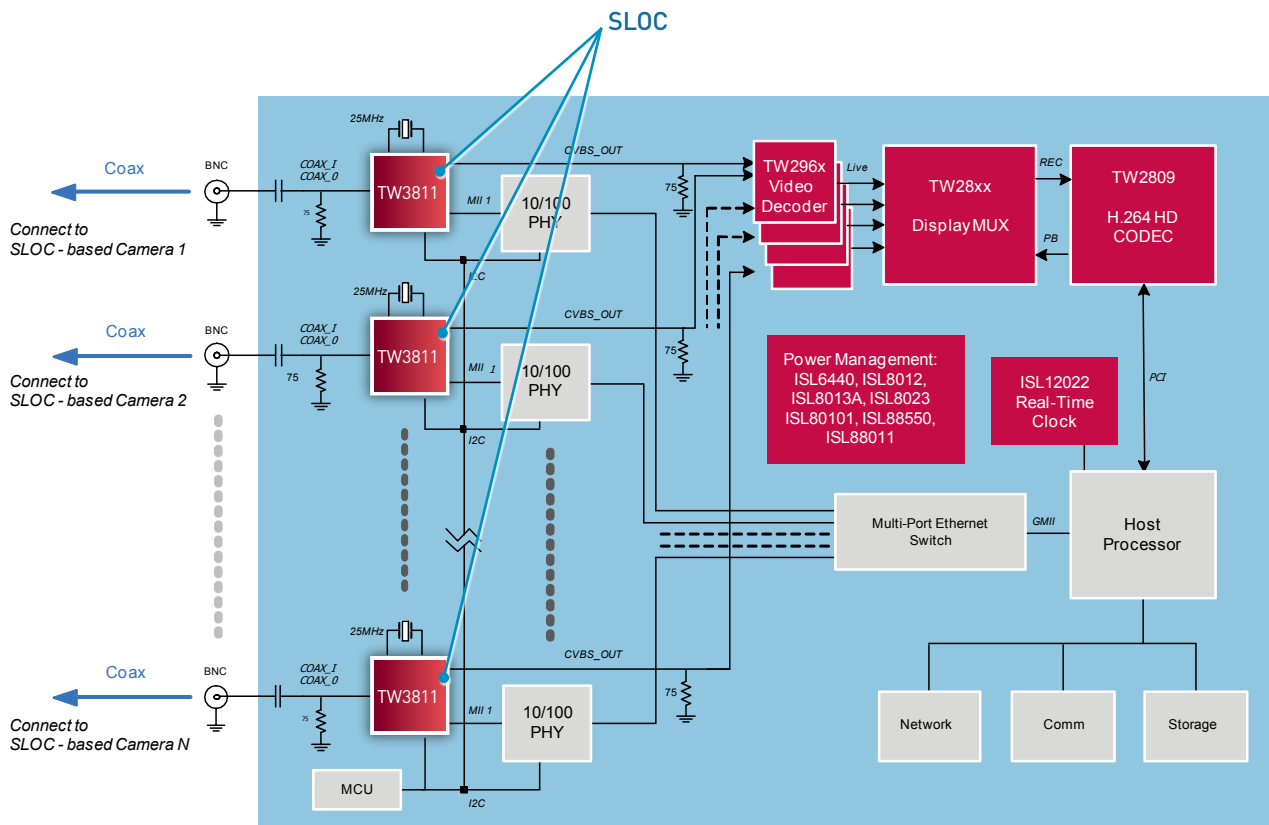


Application Example

SLOC in IP Camera - Embedded Solution



DVRs with SLOC



Display MUX Products

Intersil Techwell offers a line of high performance video multiplexing processors for mux and display expansion. It is ideal for any application requiring display of multiple images on a monitor or projector.

HD Mux & Display Expansion

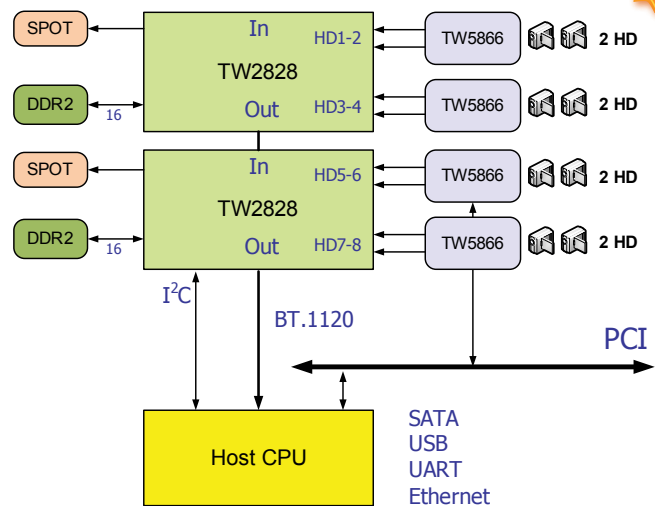
TW2828



Flexible Mixed Mode MUX Controller for Surveillance DVR Applications

Key Features

- Support 5 x BT.1120 HD inputs
- Support multiple chip cascade up via BT.1120
- Dual spot monitor output
- BT.1120 1080i HD output
- Support 20 windows (16 SD / 4 HD) (hybrid)
- Support 2D / Weave DI mode
- Support HD / SD motion detection
- Support mixed mode HD display



8 HD Application

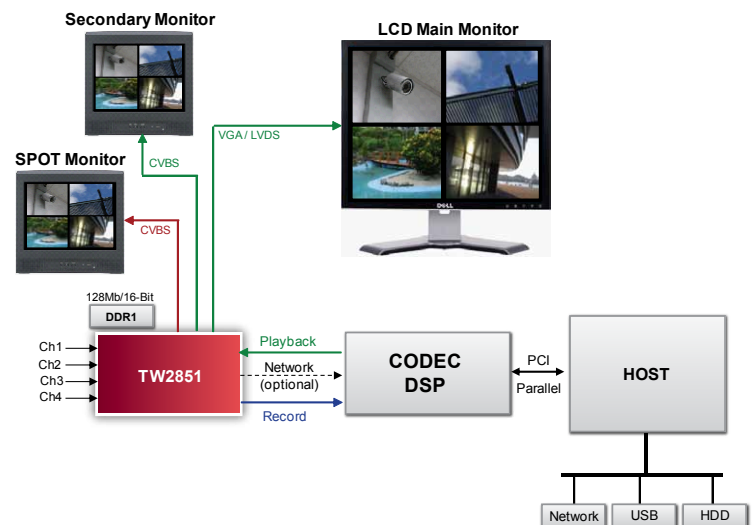
Quad MUX Controller Solution

TW2851

4-CH Decoder + MUX & Record/Display Controller

Key Features

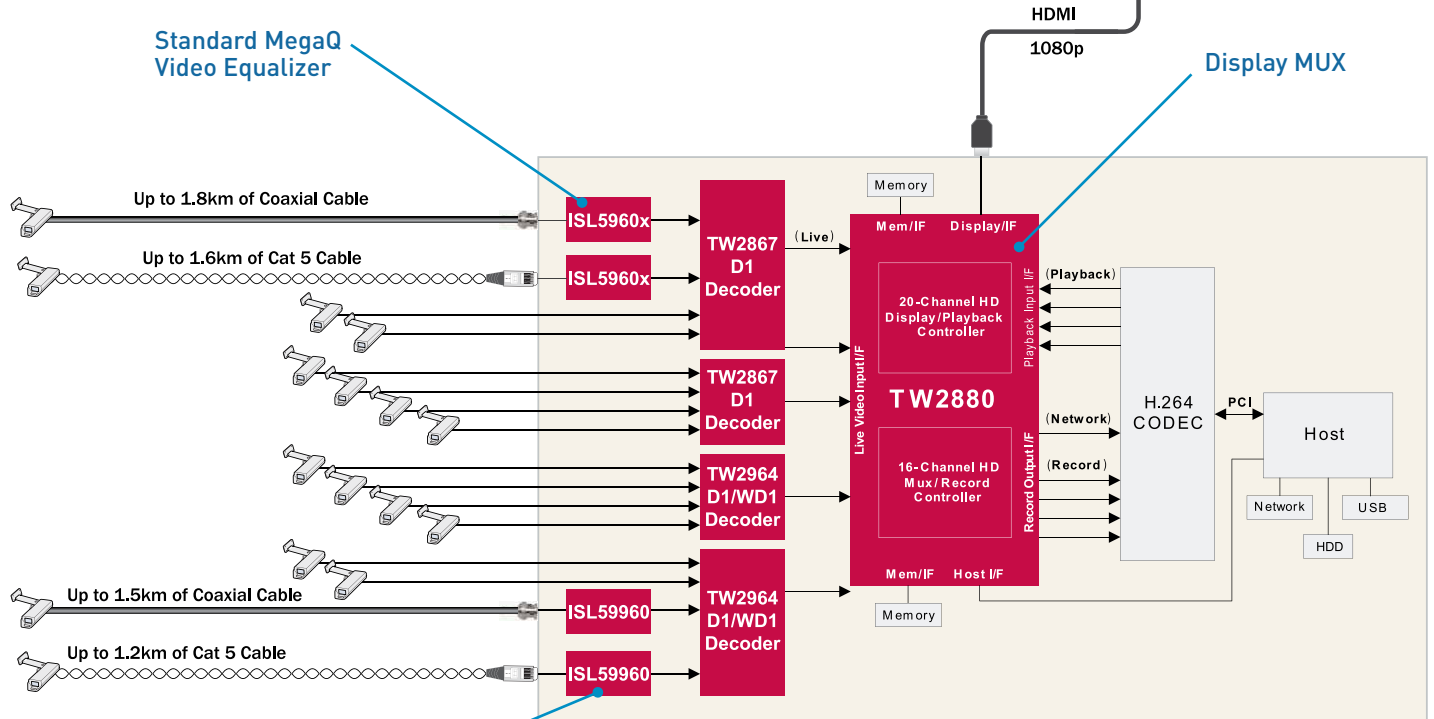
- 4-CH NTSC/PAL video decoder (CVBS only)
- Integrated MUX
- 4-CH triplex DVR functionality (Rec / PB / Live Display)
 - Record 4-CH D1 real time
 - Playback 4-CH D1 real time
 - Display 4-CH live real time (+ 4-CH playback from HDD)
- Advanced WXGA+ LCD controller & VGA controller
 - Drive LCD panel directly (TTL/LVDS) & output VGA to Monitor
 - 7 layer graphic overlay
 - Display up to 32-CH on 1 display
- Integrated motion detection
- Cascade up to 4 devices (16-CH)
- Flexible 27/54/108MHz video output interface
 - BT.656: field, & byte interleave
 - BT.1120: frame output (4D1 spatial MUX)



Application Example

16-CH MUX, Record, Playback + HD Display Controller

HD 1080p Main Display
(Live/Playback Video + Map + Control Panel)



Advanced 16 - Channel DVR System

CODEC Products

Video codec products are Intersil Techwell's latest line up to provide best encode/decode performance for high processing demand in video recording/playback applications

Features and Performance Comparison

	TW2809	TW5864	TW5866
D1 Encoding	8 D1	4 D1	9 D1
D1 Decoding	8 D1	N/A	8 D1
HD Encoding Capability	1x 1080p30	N/A	2x 720P30
HD Input Capability	2 channels	N/A	2 channels
HD Mux Capability	None	Simple	Simple
Host Interface	PCI 33/66MHz	PCI 33/66MHz	PCI 33/66MHz
Video Eecoder Embedded	None	4-CH	8-CH

1080p30 H.264 CODEC

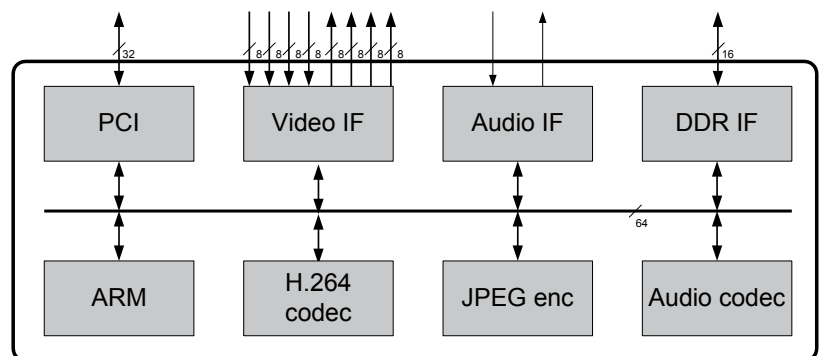
TW2809

Multichannel H.264 Audio / Video CODEC

Key Features

- Real time 9D1 H.264 MP CODEC
 - Real time 1080p/30 encode
 - Real time 32-channel CIF full duplex codec
 - Channel independence for Encode/Decode
- Selectable VBR / CBR scheme
 - VBR provides better video quality
 - Proprietary algorithm for accurate CBR
- Dual stream H.264 / JPEG encoding
 - Network sub-stream support

TW2809 Block diagram



HD H.264 CODEC + Analog Decoder
TW5866

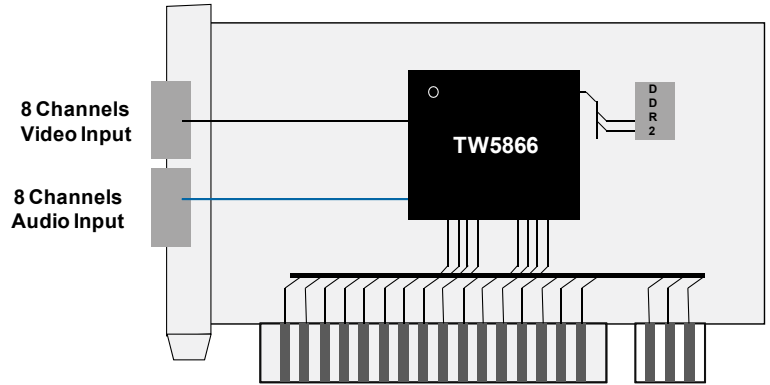


9D1 H264 CODEC with 8-CH A/V Decoder

Key Features

- Real time H.264/MJPEG BP CODEC
 - Real time 1080p/30 enc/dec
 - 9-CH D1 encoding
 - 8-CH D1 decoding
- Integrated analog decoders
 - 8 channels of D1 decoding
 - High auality 4H comb filters
- Analytics engine (per channel)
 - Programmable motion detection
 - Night detection
 - Blindness detection

8 D1 H.264 Hardware Compression PC DVR Card



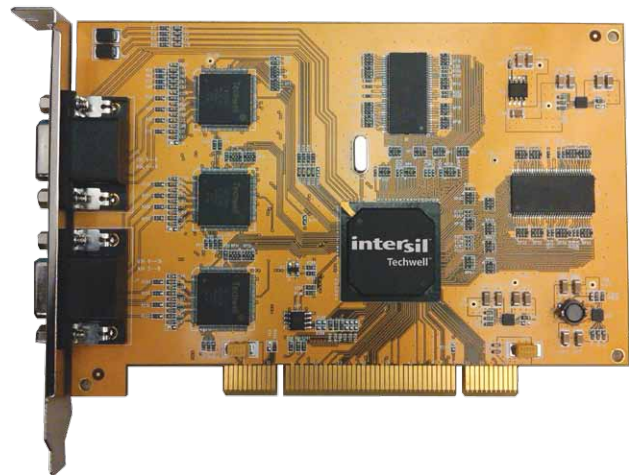
H.264 CODEC
TW5864

5 D1 H.264 Encoder with 4-CH A/V Decoder

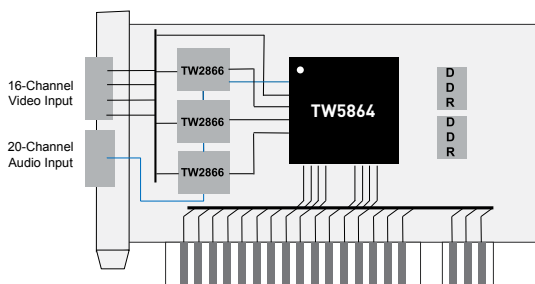
The World's First Mixed Signal H.264 Technology

Key Features

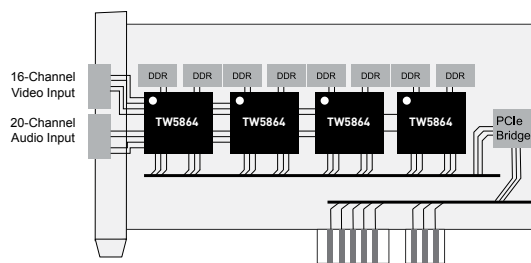
- 4-CH analog video decoder
- 5 D1 H.264 encoder engine
- Built-in motion adaptive de-interlacer
- Integrated video analytics engine
- Motion JPEG encoder
- 5-CH audio ADC and 1-CH DAC
- G.726 ADPCM audio codec
- 66MHz PCI interface support
- BT.656 line interleave output
- Package: 352 BGA



16-Channel CIF (480fps NTS / 400fps PAL)



16-Channel D1 (480fps NTSC / 400fps PAL)



Intersil's Fisheye Image Correction Technology

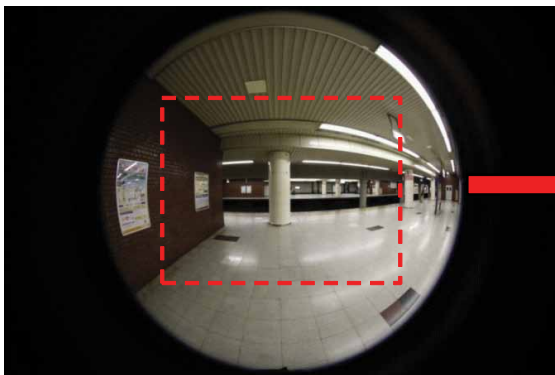
Intersil's Fisheye image correction camera processing capabilities will help correct distorted hemispherical images generated by Fisheye lens' ultra-wide field of view and deliver corrected images in a normalized rectangular output.

Unlike software-based solutions requiring a PC, the Intersil technology has been designed specifically to be integrated into IP and analog camera solutions.

The technology includes a high quality, high resolution Image Signal Processor (ISP) as well as an extremely flexible video output capability. This Fisheye correction technology is designed to work with all types of Fisheye lenses and a wide variety of commercially available CMOS and CCD sensors.

Key Benefits

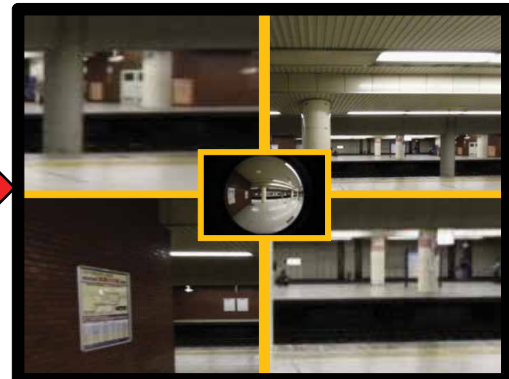
- Converts a hemispheric image into a rectangular "corrected" image.
- Up to 4 distinct areas can be selected for distortion correction
- Digital PTZ control



Original Image



Corrected Image(s)



Fisheye camera Processor

TW2871

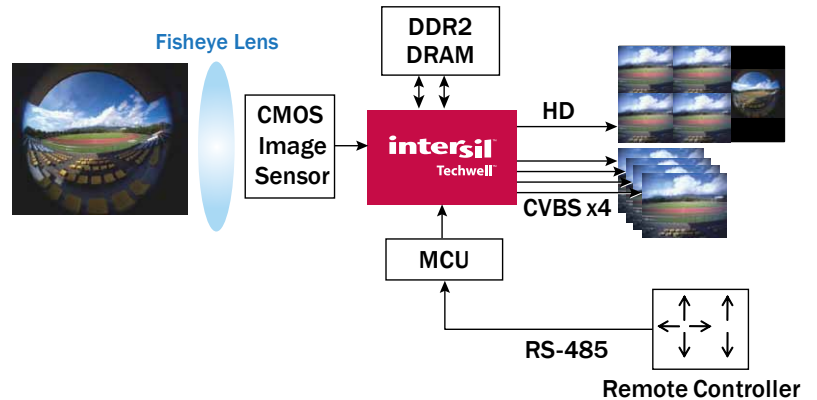
Fisheye Camera Processor with Built-in Image Signal Processing and DDR2 Controller

The TW2871 is a fisheye camera processor that converts the native hemispheric image into geometrically corrected rectangular images. Up to 4 distinct areas can be selected for distortion correction and then output as either one combined image in HD format, or as four separate D1/CVBS format video streams. TW2871 enables digital PTZ (Pan, Tilt, Zoom), eliminating the need for mechanical movement or can be used to consolidate 4 cameras into a single camera with a fisheye lens.

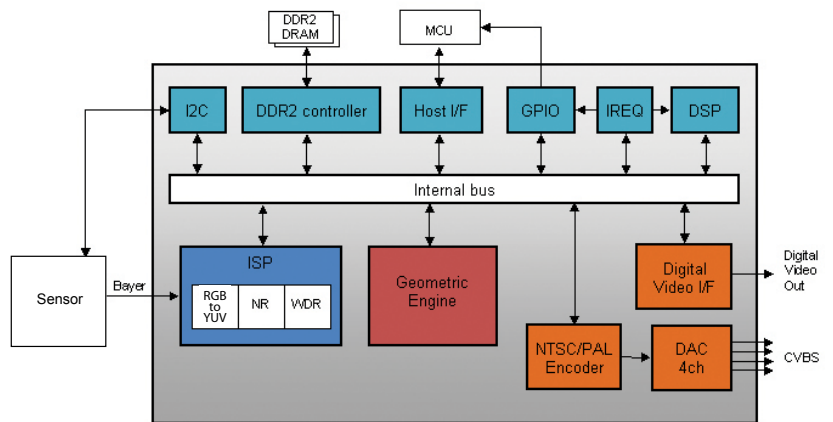
Key Features

- High quality geometric correction for Fisheye cameras
- Up to 10 megapixel CMOS/CCD sensor input support
- Integrated ISP
- Flexible corrected “rectangular” output modes:
 - HD digital format output – 720p/1080i
 - 4 D1 CVBS outputs
 - 2 BT.656 outputs
- Built-in motion detection, object tracking, & privacy masking

Consolidate 4 Cameras into Single Camera with Fisheye Lens



Functional Block Diagram



RTC Modules with Embedded Crystal and Temp Comp

ISL12020M

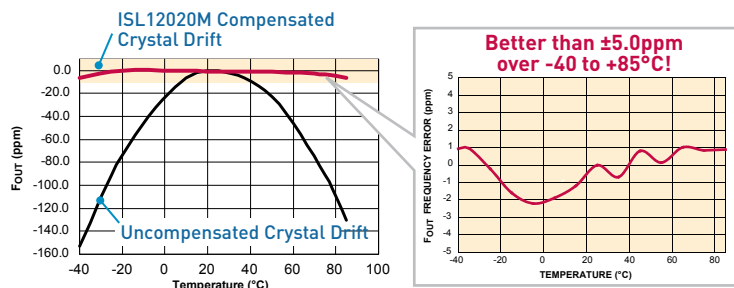


Extremely Small, 5ppm Accuracy RTC Module with Integrated Crystal and Temperature Sensor for High Accuracy Applications

Key Features

- ± 5 ppm accuracy (-40° to +85°C)
 - Factory programmed for optimal accuracy
 - Onboard temperature sensor
 - Integrated crystal
- 5mm x 4.5mm DFN package: the smallest RTC of its type available (SOIC versions also available)
- Battery backup and power management
- Battery Interseal™ extends battery shelf life

High Accuracy Even in Extreme Temperature Conditions



Low-Cost, Low-Power RTC

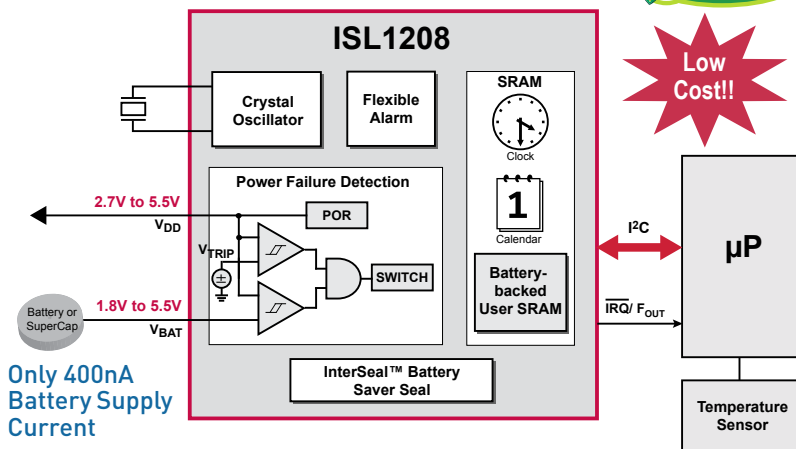
ISL1208



Full Featured RTC with Battery Backup and User SRAM for General Purpose Applications

Key Features

- Fully featured RTC with time, day, and date registers
- Battery backup – only 400nA typical current draw
- Battery backed SRAM
- Available in 3mm x 3mm TDFN (or SOIC/MSOP)
- Battery Interseal™ extends battery shelf life



Only 400nA Battery Supply Current

Low-Cost, Low-Power RTCs

Device	I _{BAT} (nA)	Alarms	Selectable Frequency Output	CPU Supervisory Function		Battery		IRQ	F _{OUT}	SRAM	Other Functions	Package
				POR	Watchdog Timer	Seal	Backup					
With Battery Backed SRAM												
ISL1208	400	1	15	N	N	Y	Y	Shared Pin		2 Bytes		8 Ld MSOP, 8 Ld SOIC, 8 Ld TDFN
ISL1218	400	1	15	N	N	Y	Y	Shared Pin		8 Bytes		8 Ld MSOP, 8 Ld SOIC
ISL1220	400	1	15	N	N	Y	Y	Dedicated Pin	Dedicated Pin	8 Bytes		10 Ld MSOP
With IRQs, Alarm and Timer (Low cost alternative without V_{BAT})												
ISL12057	400	2	4	N	N	N	N	Shared Pin		N	• 3V operation	8 Ld SOIC, 8 Ld MSOP, 8 Ld TDFN
ISL12058	400	2	4	N	N	N	N	Shared Pin		N	• 3V operation	8 Ld SOIC, 8 Ld MSOP, 8 Ld TDFN, 8 Ld µTDFN

Interface ICs for Security Applications

Intersil offers a broad portfolio of robust RS-485/422 devices that have the basic 485 protocol features or enhanced features that add to product reliability. With supply voltage ranges from 1.8V to 5.5V you can find about any kind of differential solution to fit your application.

+3V to +5V, RS-485/422 Transceivers, Transmitters, Receivers

Basic Features

Device	5V	3V	Dr	Rec	Half Dup	Full Dup	SRL kbps	Hi Speed Mbps	125°C temp	Fail Safe Open	Fract UL	High ESD
ISL848x	Y		1	1	Y	Y	250	5		Y	32	
ISL848xE	Y		1	1	Y	Y	250	5	8485E	Y	32	15kV HBM
ISL4485E	Y		1	1	Y			20		Y	32	15kV HBM
ISL4489/91E	Y		1	1		Y	250	15		Y	256	15kV HBM
ISL8x487	Y		1	1	Y		250	5		Y	256	
ISL8348x		Y	1	1	Y	Y	250	10		Y	32	
ISL43485		Y	1	1	Y			30		Y	32	
ISL81485/86	Y		1	1	Y			30		Y	32	
ISL4486	Y		1	1	Y			40		Y	32	

Enhanced Features

Device	5V	3V	Dr	Rec	Half Dup	Full Dup	SRL kbps	Hi Speed Mbps	125°C temp	Full Fail Safe	Fract UL	High ESD	Hot Plug
ISL8308xE	Y		1	1	Y	Y	115/ 500	10		Y	256	15kV HBM	Y
ISL8307xE		Y	1	1	Y	Y	250/500	20		Y	256	15kV HBM	Y
ISL315xE	Y		1	1	Y	Y	115/1M	20/40	3159	Y	256	IEC61000	Y
ISL317xE		Y	1	1	Y	Y	250/500	20/40	3179	Y	256	IEC61000	Y
ISL328xE	Y	Y		1				20	Y	Y	256	IEC61000	
ISL329xE	Y	Y	1				250/500	20	Y		256	IEC61000	Y
ISL32x73/5/7E	Y	Y		4				80	Y		128	IEC61000	
ISL32x72/4E	Y	Y	4				460	10/32	Y		256	IEC61000	Y
ISL3259E	Y		1	1	Y			100	Y	Y	160	IEC61000	Y

Over Voltage Protected to 60V

Device	5V	3V	Dr	Rec	Half Dup	Full Dup	SRL kbps	Hi Speed Mbps	Wide Vcm	Full Fail Safe	Fract UL	High ESD	Hot Plug
ISL3149xE	Y		1	1	Y	Y	250/1000	15	±25	Y	128		Y
ISL3148xE	Y		1	1	Y	Y	1000		±25/ Polarity reversal	Y	128		Y
ISL3147xE	Y		1	1	Y	Y	250/1000	15	±15	Y	128		Y
ISL3245xE*		Y	1	1	Y	Y	250/1000		±20	Y	128	15kV HBM	
ISL3249x	Y		1	1	Y	Y	250/1000	15	±25	Y	128	15kV HBM	Y
ISL3248x	Y		1	1	Y	Y	1000		±25/ Polarity reversal	Y	128	15kV HBM	Y
ISL3247x	Y		1	1	Y	Y	250/1000	15	±15	Y	128	15kV HBM	Y

* Coming soon.

RS-485/RS-422 Transceivers

ISL315xE, ISL317xE

Transceiver Family with the Highest Noise Immunity and ESD Protection in Small Packages

Key Features

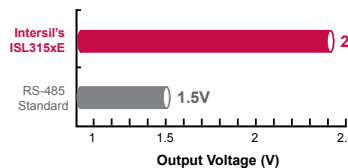
- 60% higher output voltage. 2.4V min vs. typical 1.5V min
- IEC61000 ESD protected I/O pins
- True 1/8 unit load

Applications

- Security cameras and DVRs
- Electronic Utility Meter Reading Systems, E-meter
- Industrial Air Conditioning Systems
- PROFIBUS and Factory Automation

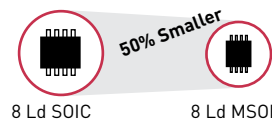
Enhanced Noise Immunity

60% Higher Output Voltage (ISL315xE)

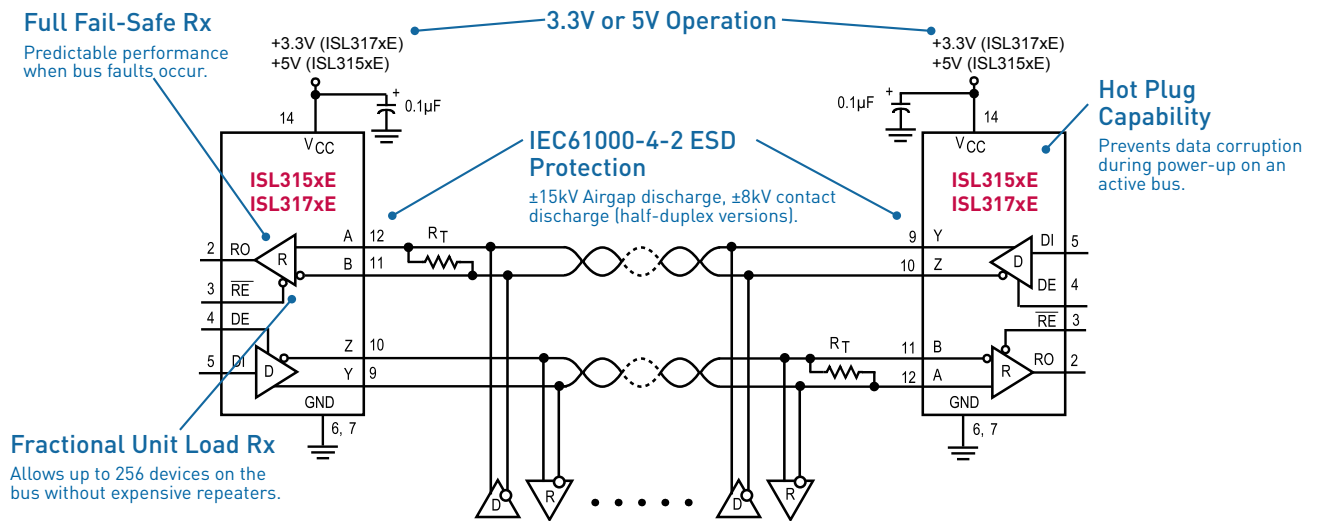


Provides enhanced noise immunity and can drive longer cable lengths or more cable terminations.

Space-saving Small Package



Typical Operating Circuit



Device	Devices Allowed on Bus	Half/Full Duplex	Hot Plug	Data Rate (Mbps)	Slew Rate Limited	Tx/Rx Enable	I _S EN/DIS (μA)	SHDN I _{CC} (μA)	V _{CC} Range (+V)	Package
5.5V, Fractional UL, 15kV ESD, Full Failsafe										
ISL3150E	256	Full	Yes	0.115	Yes	Yes	800/700	0.07	4.5 to 5.5	10 Ld MSOP, 14 Ld SOIC
ISL3152E	256	Half	Yes	0.115	Yes	Yes	800/700	0.07	4.5 to 5.5	8 Ld MSOP, 8 Ld PDIP, 8 Ld SOIC
ISL3153E	256	Full	Yes	1	Yes	Yes	800/700	0.07	4.5 to 5.5	10 Ld MSOP, 14 Ld SOIC
ISL3155E	256	Half	Yes	1	Yes	Yes	800/700	0.07	4.5 to 5.5	8 Ld MSOP, 8 Ld SOIC
ISL3156E	256	Full	Yes	20	No	Yes	800/700	0.07	4.5 to 5.5	10 Ld MSOP, 14 Ld SOIC
ISL3158E	256	Half	Yes	20	No	Yes	800/700	0.07	4.5 to 5.5	8 Ld MSOP, 8 Ld SOIC
3.3V, Fractional UL, 15kV ESD, Full Failsafe										
ISL3170E	256	Full	Yes	0.25	Yes	Yes	510/480	0.01	3.0 to 3.6	10 Ld MSOP, 14 Ld SOIC
ISL3172E	256	Half	Yes	0.25	Yes	Yes	510/480	0.01	3.0 to 3.6	8 Ld MSOP, 8 Ld SOIC
ISL3173E	256	Full	Yes	0.5	Yes	Yes	510/480	0.01	3.0 to 3.6	10 Ld MSOP, 14 Ld SOIC
ISL3175E	256	Half	Yes	0.5	Yes	Yes	510/480	0.01	3.0 to 3.6	8 Ld MSOP, 8 Ld SOIC
ISL3176E	256	Full	Yes	20	No	Yes	510/480	0.01	3.0 to 3.6	10 Ld MSOP, 14 Ld SOIC
ISL3178E	256	Half	Yes	20	No	Yes	510/480	0.01	3.0 to 3.6	8 Ld MSOP, 8 Ld SOIC

Power ICs for Security Applications

Single Output Int FET Regulator ISL8023

Single 3A High Efficiency Integrated FET Buck Regulator

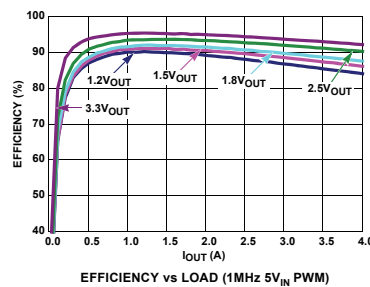
The ISL8023 is a high efficiency, monolithic, synchronous step-down DC/DC converter that can deliver up to 3A continuous output current from a 2.7V to 5.5V input supply.

Key Features

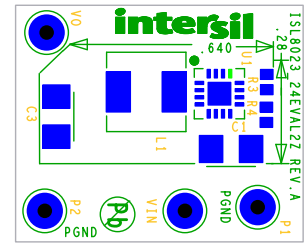
- Single 3A output current
- High efficiency up to 95%
- Adjustable switching frequency from 500kHz to 4MHz, default 1MHz or 2MHz
- Synchronizable
- 3 x 3 16 Ld QFN package

High Efficiency

Flat efficiency curve over a wide load range in PWM mode.



Solution Size 0.64" x 0.28"



LDOs

Part Number	V _{IN} Range (V)	V _{OUT} Range (V)	I _{OUT} (A)	Major Features
ISL80101-ADJ	2.2 - 6	0.8 to 5	1	Adjustable V _{out} and current limiting LDO. 2% accuracy and fast transient load performance. Low 130mV dropout at full load. Small DFN package.
ISL80111	1 - 3.6	0.8 - 3.6	1	Split rail LDO allows ultra low V _{in} with separate bias voltage to maintain LDO performance. 1.6% output accuracy, 70dB PSRR, fast transient load and low 90mV drop off performance. Small DFN package.
ISL9001A	2.3 to 6.5	1.5 to 3.3	0.3	Preset 2.5V LDO with good PSRR and load transient performance. Low 25µA I _q current. 2x3mm DFN package.
ISL9021	1.5 to 5.5	0.9 to 3.3	0.25	Single LDO with very high 75dB PSRR and low 35µA I _q current. Small 1.6x1.6 mm uTDFN package
ISL9005A	2.3 to 6.5	1.5 to 3.3	0.3	Single LDO with very high 75dB PSRR and low 50µA I _q current. Small 2x3mm DFN package

PWM Controllers

Part Number	V _{IN} Range (V)	V _{OUT} Range (V)	I _{OUT} (A)	Major Features
ISL6440	4.5 to 24	0.8 to 0.9V _{IN}	10	Dual PWM 300kHz controller 180° out of phase operation with multiple supply monitor features
ISL6442	4.5 to 24	0.6 to V _{IN}	20	Dual PWM + 5V 80mA linear LDO controller 300kHz to 2.5MHz with multiple supply monitor features
ISL6446	4.5 to 24	0.6 to V _{IN}	20	Dual PWM + 5V 80mA linear LDO controller 100kHz to 2.5MHz with multiple supply monitor features. Price optimized controller.
ISL9443	4.5 to 26	0.7 to V _{IN}	25	Triple PWM controller 200kHz to 1.2MHz 180° out of phase operation with enhanced efficiency at light load operation
ISL8105	1 to 20	0.6 to 0.9V _{IN}	10	Single PWM controller for synchronous buck converter

Int FET Regulators

Part Number	V _{IN} Range (V)	V _{OUT} Range (V)	I _{OUT} (A)	Major Features
ISL8013A	2.8 to 5.5	0.8 to V _{IN}	3	High efficiency sync buck regulator with low I _q current and enhanced light load efficiency circuitry. 4x4 QFN
ISL8023	2.7 to 5.5	0.6 to V _{IN}	3	High efficiency sync buck regulator with low I _q current and enhanced light load efficiency circuitry. 3x3 mm QFN. Improved performance and smaller package of ISL8013A
ISL8088	2.7 to 5.5	0.6 to V _{IN}	0.8/0.8	Dual output high efficiency sync buck regulator with low I _q current and enhanced light load efficiency circuitry. 3x3mm QFN.
ISL8022	2.7 to 5.5	0.6 to V _{IN}	2/1.7	Dual output high efficiency sync buck regulator with low I _q current and enhanced light load efficiency circuitry. 4x3mm QFN.

Single Voltage Monitor ISL88001, ISL88002, ISL88003

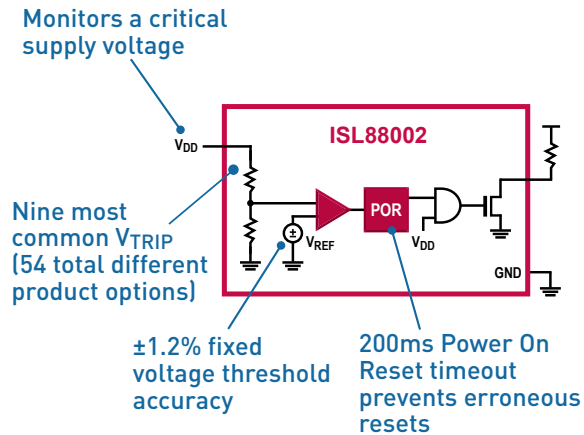


Power-Efficient 1.8V to 5V Voltage Monitors

300nA (max) current consumption at 1.8V, tight voltage threshold accuracy of $\pm 1.2\%$ and 54 total options - all at a competitive price - make ISL88001/2/3 the ideal single voltage monitors.

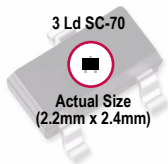
Key Features

- Single voltage monitoring supervisors
- Fixed-voltage options allow precise Monitoring of +1.8V, +2.5V, +3.0V, +3.3V and +5.0V power supplies
- Ultra low 160nA supply current
- $\pm 1.2\%$ voltage threshold accuracy
- 190ms power-on reset timeout
- Reset signal valid down to $V_{DD} = 1V$
- No external components necessary
- Immune to power-supply transients

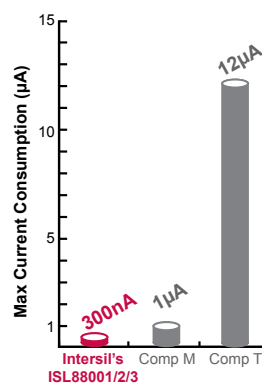


Three Reset Options

- ISL88001**
Active Low Push-Pull
- ISL88002**
Active Low Open Drain
- ISL88003**
Active High Push-Pull



Industry standard pin-out in SC-70 and SOT-23.



Intersil's ISL88001/2/3 voltage monitors use only a fraction of power compared to competitors, making them ideal for portable and battery-powered applications.

Applications

- Battery-Powered and Portable Electronics
- Medical Instrumentation
- Consumer Applications
- Telecom Equipment

USB Port Protection

Part Number	V _{in} Range	V _{OUT} Range	I _{OUT}	Major Features
ISL6185	2.5 to 5.5	N/A	I _{LIMIT}	USB port circuit breaker with low Ron FETs, adjustable current limit and fault reporting. Standard 8 Ld SOIC and DFN package.
ISL80121-5	2.2 - 6	5	1A	Preset 5V LDO with adjustable current limit protection ideal for USB port. Good accuracy and transient load performance. Low drop out across full load. Small DFN package.

Voltage Supervisory

Part Number	Monitor Threshold	Reset Output	WDT	Major Features
ISL88001	1.8V to 5.5V	Active Low	No	Voltage supervisor with fixed threshold monitor voltage. Ultra low 160nA quiescent current consumption in 3-pin SOT-23 package.
ISL88002	1.8V to 5.5V	Open Drain	No	
ISL88003	1.8V to 5.5V	Active High	No	
ISL88013	1.8V to 5.5V	Active High/Low	Yes	Advanced voltage supervisor with fixed threshold monitor voltage and internal Watch Dog Timer
ISL88014	1.8V to 5.5V	Active Low	No	Advanced voltage supervisor with programmable threshold monitor voltage and adjustable power on reset timeout
ISL88015	1.8V to 5.5V	Active Low	Yes	Advanced voltage supervisor with programmable threshold monitor voltage and internal Watch Dog Timer



Intersil Main Offices

Visit www.intersil.com for a complete list of sales representatives and distributors.

NORTH AMERICA

WEST COAST
Intersil Headquarters
1001 Murphy Ranch Road
Milpitas, CA 95035
(TEL) 408-432-8888
(FAX) 408-434-5351
1-888-INTERSIL
1-888-468-3774

EAST COAST
1650 Robert J Conlan Blvd NE
Palm Bay, FL 32905
(TEL) 321-724-7000
(FAX) 321-729-7320
1-888-INTERSIL
1-888-468-3774

ASIA PACIFIC

Suite 501, 5/F,
Ocean Centre, Harbour City,
Tsimshatsui, Kowloon
Hong Kong
(TEL) +852-2709-7600
(FAX) +852-2730-1433

JAPAN

6F, Mita Nitto Daibiru
3-11-36, Mita, Minato-ku
Tokyo, 108-0073 Japan
(TEL) +81-3-5439-2311
(FAX) +81-3-5439-2300

EUROPE

Oskar-Messter-Str. 29
D-85737 Ismaning
Germany
(TEL) +49-89-46263-0
(FAX) +49-89-46263-148