Multi-megapixel reference designs for video surveillance

Texas Instruments

IP camera solutions enable quick product development at analog camera price points

Provided with TI's technology, several multiple highly-optimized reference designs based on DaVinci™ video processors are offered for the IP camera market that enable developers to speed through the design process as well as reducing overall bill of materials (BOM) costs.

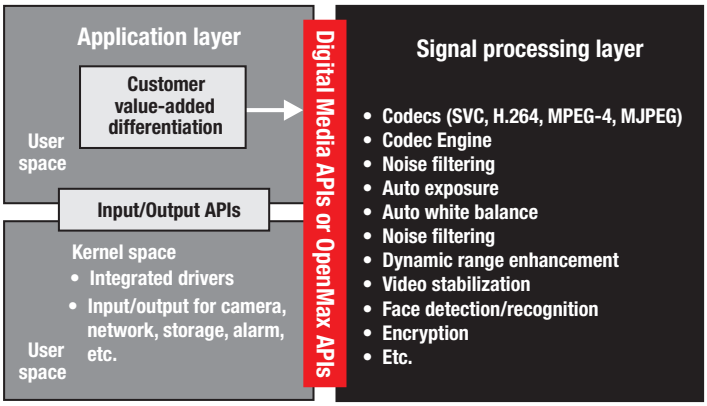
These reference designs:

- Reduce development time by 90 percent
- Deliver higher quality, full HD video at >60 fps
- Decrease electronic bill of materials
- Empower customers to bring sub-$100 HD IP cameras to the market
- Provide integrated auto white balance and auto exposure
- Provide software framework including input/output and media APIs, Codec Engine

Included at no additional cost:

- Complete schematics
- Gerber files

- Support for select Sony, Aptina, Panasonic, Altasens and Omnivision image sensors including drivers, camera module schematics and layout
- Complete Linux™-based IP camera application including free source code
- Royalty-free and production-ready codec
- ONVIF/PSIA standard support



TMS320DMxx-based IP Camera reference design software

Multiple IP camera reference designs available based on TI technology

- **Up to 10-Megapixel IPCamera Reference Design (TMDSIPCAM385M34, TMDSIPCAM8127J3):** Single platform solution provides SVC^T / H.264 4M 30 fps + SVC^T / H.264 D1 30 fps. Up to 750-MHz DSP on DM8127 processor for analytics
- **Smart Analytics IP Camera Reference Design (DMVA2IPNC-MT5):** Single-platform solution provides SVC^T / H.264 720p 30 fps + SVC^T / H.264 CIF 30 fps + smart analytics or 1080p at lower fps
- **DM36x IP Camera Reference Design (DM368IPNC-MT5, DM365IPNC-MT5):** Single-platform solution provides up to full HD (1080p30) SVC^T / H.264 30 fps encode with secondary channel
- **DM369 IPCamera Reference Design (TMDSIPCAM369X104):** Single-platform solution brings best-in-class low-light performance together with 720p30 SVC^T / H.264 compression. Support for up to 1080p30 video compression performance

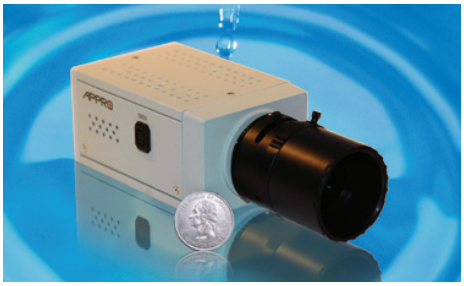
Order via ***www.ti.com/ipcamera***

DM369 IP camera reference design with best-in-class low-light technology @ U.S. $995

The DM369 IP camera reference design provides real-time Megapixel SVC[T] / H.264 compression together with TI's third-generation noise filtering technology and can support 2 megapixels or higher resolution video along with advanced software for image signal-processing tuning, and encryption.

Hardware features

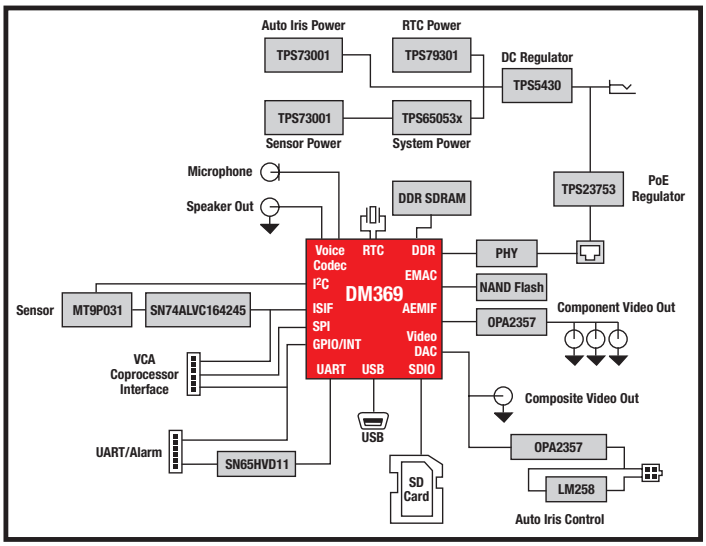
- TI's TMS320DM369 DaVinci™ video processor includes ARM926 @ 432 MHz and H.264 hardware video coprocessor, EMAC, RTC and integrated voice codec for BOM savings
- Board size: 65×50-mm, low power (3W)
- Power over Ethernet, audio, SD storage
- ONVIF/PSIA compliant



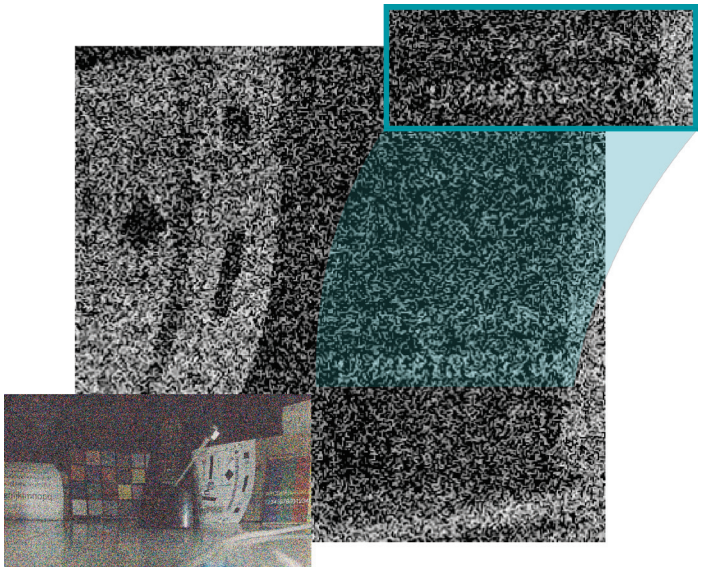
TMDSIPCAM369X104 IP Camera Reference Design available from Appro Photoelectron Inc.

Software features

- TI's third-generation noise filtering technology
- Encode up to H.264 high profile 720p at 30 fps together with noise filtering or 1080p at 30 fps. Higher megapixel resolutions supported at lower frame rates.
- Triple stream per channel (H.264, MPEG-4, MJPEG) and simultaneous base/main/high-profile encoding
- Ability to add video analytics with DaVinci TMS320DM643x DSP



IP camera reference design block diagram: TMDSIPCAM369X104



Low-light scenes without noise filter

Corresponding low-light scenes after TI's third-generation noise filter

DM385 IP camera reference design with H.264 high profile 4MP at 30 fps @ U.S. $995

The DM385 IP camera reference design provides real-time 4 megapixel video, with support for 5, 6, 8, 10 and higher megapixel resolution video, advanced software for image signal processing tuning, and encryption.

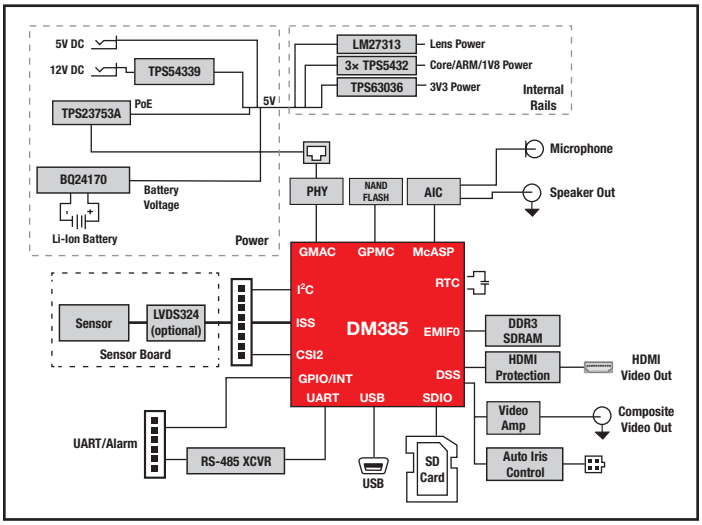
Hardware features

- DM385 DaVinci™ video processor includes ARM® Cortex™-A8, SVC^T / H.264 / MJPEG video coprocessor, Gigabit EMAC, PCIe for BOM savings
- Power over Ethernet, audio, SD storage, along with WiFi™ and GPS extensibility

Software features

- TI's third-generation noise filtering engine
- Encode up to SVC^T, H.264 high profile or MJPEG 4-megapixel video at 30 fps or 1080p at 60 fps with secondary D1 channel at 30 fps
- Triple stream per channel (SVC^T, H.264, MPEG-4, MJPEG)
- Software framework includes input/output and media APIs, Codec Engine
- Advanced features like face detection, video stabilization, fish eye correction

TMDSIPCAM385M34 Camera Reference Design available from Appro Photoelectron Inc.



DM385 IP camera reference design block diagram: TMDSIPCAM385M34

DMVA2 IP camera reference design with integrated smart video analytics @ U.S. $895

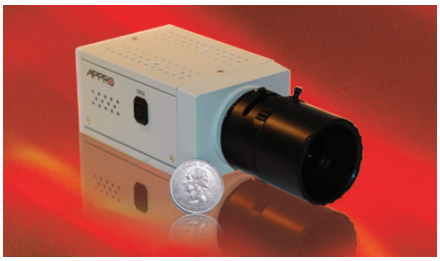
The DMVA2 IP camera reference design provides entry-level analytics including people counting, trip zone, intelligent motion detection, face detection and privacy masking, camera tamper detection, and streaming metadata.

Hardware features

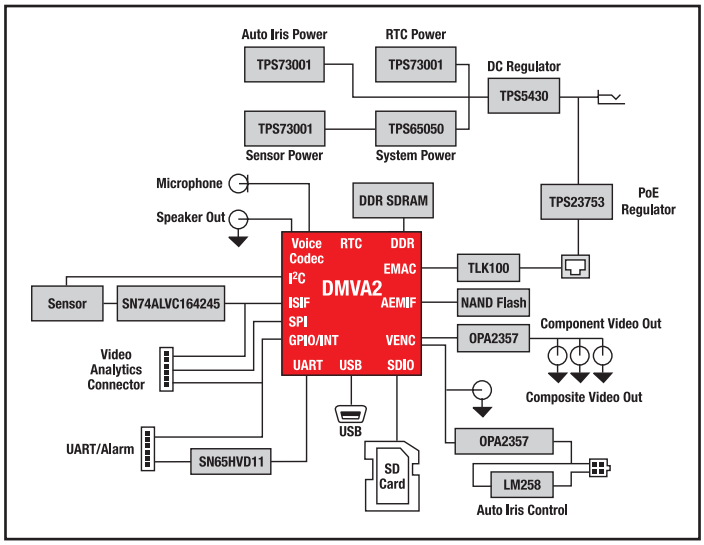
- TMS320DMVA2 DaVinci video processor includes ARM926, vision coprocessor, H.264 video coprocessor, EMAC, RTC and integrated voice codec for BOM savings
- Board size: 65×50mm
- Power over Ethernet, audio, SD storage

Software features

- Smart analytics GUI for setup, control and management of each application
- Encode up to H.264 high profile. Level 3.1 720p at 30 fps or 1080p at 10 fps including MPEG-4 and MJPEG support
- TI's second-generation advanced graphical user interface
- Ability to add additional video analytics with DaVinci TMS320DM643x DSP



DMVA2IPNC-MT5 IP Camera Reference Design available from Appro Photoelectron Inc.



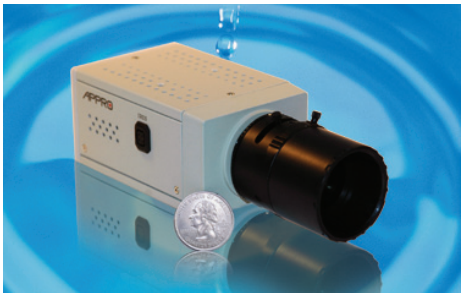
DMVA2 IP camera reference design block diagram: DMVA2IPNC-MT5

DM365/DM368 IP camera reference design with H.264 high profile 1080p at 30 fps @ U.S. $795/U.S. $995

The DM368 IP camera reference design provides full HD video with 30 percent boost in host processing performance, advanced software for image signal processing tuning, and encryption. Offers scalable, lower cost solution with pin-to-pin compatible DM365 processor

Hardware features

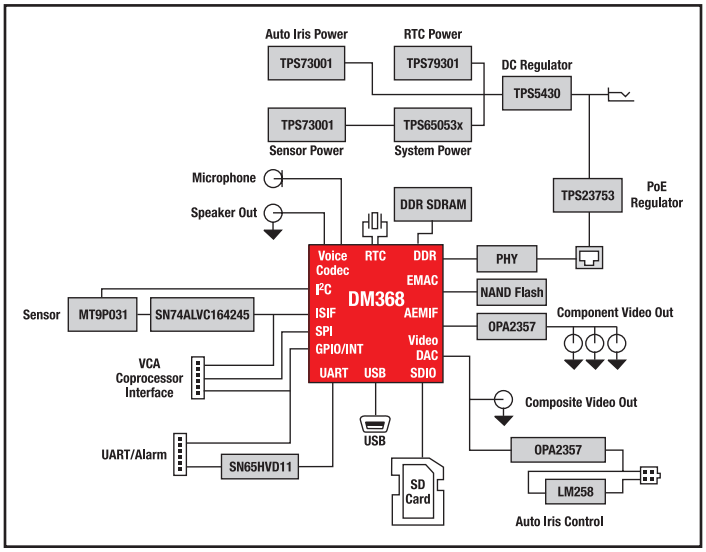
- TI's TMS320DM368 DaVinci™ video processor includes ARM926 @ 486 MHz and H.264 hardware video coprocessor, EMAC, RTC and integrated voice codec for BOM savings
- Board size: 65×50-mm, low power (3W)
- Power over Ethernet, audio, SD storage
- ONVIF/PSIA compliant



DM368IPNC-MT5 IP Camera Reference Design available from Appro Photoelectron Inc.

Software features

- TI's second-generation advanced graphical user interface
- Encode up to H.264 high profile 1080p at 30 fps or 720p at 60 fps; MPEG-4 up to 720p at 60 fps; MJPEG at 5 megapixels at 15 fps
- Triple stream per channel (H.264, MPEG-4, MJPEG)
- Ability to add video analytics with DaVinci DM643x DSP



IP camera reference design block diagram: DM368IPNC-MT5

DM8127 IP camera reference design with on-chip DSP video analytics @ U.S. $995

The DM8127 IP camera reference design provides multi-megapixel video with 4× boost in host processing performance, built-in video analytics capability, advanced software for image signal processing tuning and encryption.

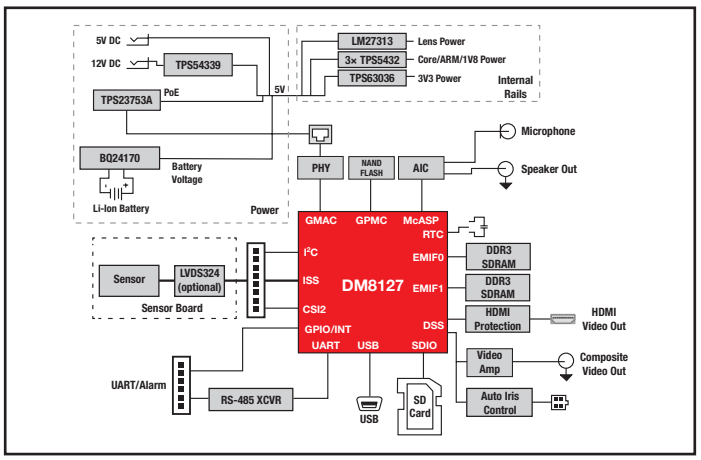
Hardware features

- DM8127 DaVinci™ video processor includes ARM® Cortex™-A8, C674x DSP, SVC^T/H.264/MJPEG video coprocessor, Gigabit EMAC, PCIe for BOM savings
- Board size: 100×60 mm
- Power over Ethernet, audio, SD storage, along with WiFi™ and GPS extensibility

TMDXIPCAM8127J3 IP Camera Reference Design available from Appro Photoelectron Inc.

Software features

- TI's third-generation advanced graphical user interface
- Encode up to SVC^T, H.264 high profile or MJPEG 4-megapixel video at 30 fps or 1080p at 60 fps with secondary D1 channel at 30 fps
- Triple stream per channel (SVC^T, H.264, MPEG-4, MJPEG)
- Software framework includes input/output and media APIs, Codec Engine
- Onboard C674x DSP for analytics



DM8127 IP camera reference design block diagram: TMDXIPCAM8127J3

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