

HD Video Surveillance IP Camera Reference Designs



Multiple IP Camera Solutions Enable Quick Product Development at Low Analog Camera Price Points

Texas Instruments offers multiple highly optimized reference designs based on the TMS320DM3x DaVinci™ video processors for the IP camera market to enable developers to speed through the design process as well as reducing overall bill of materials costs. These reference designs:

- Reduce development time by 98 percent
- Deliver higher quality, wider field-of-view HD images
- Decrease electronic bill of materials
- Empower customers to bring U.S. \$150 HD IP cameras to the market

These solutions reduce development to under four months by including:

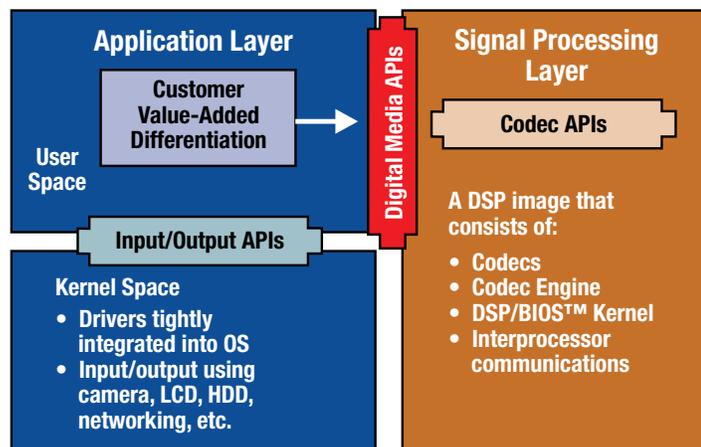
- Complete and optimized schematics
- Gerber files
- Free Linux application source code,

including:

- Integrated auto white balance and auto exposure
- Simple motion detection
- Dual-stream HD MPEG-4 and MJPEG video codecs to support recording and monitoring needs

at full frame rates

- DaVinci IP camera software framework including I/O application programming interfaces (APIs), media APIs and DaVinci Codec Engine



▲ TMS320DM3x-based IP camera reference design software

Multiple Reference Designs Available Based on TI Technology:

TI's DM3x-based IP camera solutions are:

- **New DM36x IP Camera Reference Design** (part #: DM368IPNC-MT5): Single-platform solution provides 1080p at 30 fps
- **DM365 IP Camera Reference Design** (part #: DM365IPNC-MT5): Single-platform solution provides H.264 in HD
- **Video Content Analytics (VCA) IP Camera Reference Design** (part #: DM355IPNC-VCA1): includes base version plus VCA technology from Object Video
- **DM355 IP Camera Reference Design** (part #: DM355IPNC-MT5): supports high definition (HD) at 1.3 MPixel CMOS sensor technologies from Aptina

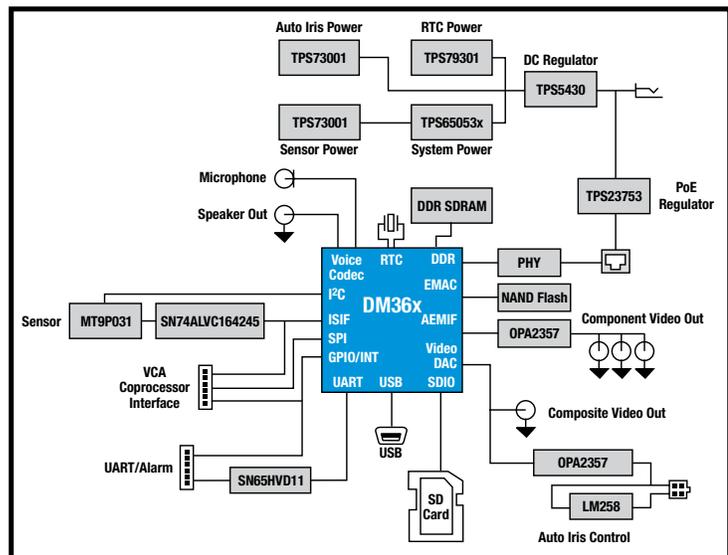
Order via www.ti.com/ipcamera

DM36x IP Camera Reference Design: H.264 main profile 1080p at 30 fps DM368IPNC-MT5 @ U.S. \$995

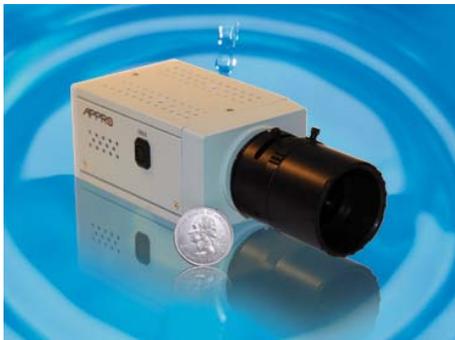
TI's latest reference design provides full HD video with 30 percent boost in host processing performance, advanced software for image signal processing tuning and encryption.

Hardware features

- TI's TMS320DM36x DaVinci™ video processor includes ARM926 and H.264 hardware video coprocessor, EMAC, RTC and integrated voice codec for BOM savings
- Aptina 5-MP sensor CMOS imager optimized for low-light performance
- Board size 65x50-mm, low power (3W)



▲ IP Camera Reference Design block diagram: DM368IPNC-MT5



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

- Power over Ethernet, audio, SD storage

Software features

- Complete Linux-based IP camera application including free source code
- Encode up to H.264 main 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)
- Integrated auto white balance and auto exposure
- Royalty-free, production-ready codecs included
- Software framework includes input/output and media APIs, codec engine
- Ability to add video analytics with DaVinci TMS320DM643x DSP

DM365 IP Camera Reference Design: DM365IPNC-MT5 @ U.S. \$795

TI and Aptina Imaging (a division of Micron) have come together again to bring to market a single platform, H.264 reference design for faster development at a reduced cost.

Hardware features

- TI TMS320DM365 DaVinci™ video processor includes ARM926 and H.264 HW video coprocessor, EMAC, RTC and integrated voice codec for BOM savings

- Aptina 5-MP sensor CMOS imager optimized for low-light performance
- Board size 65x50 mm, low-power (3W)
- Power over Ethernet, audio, SD storage

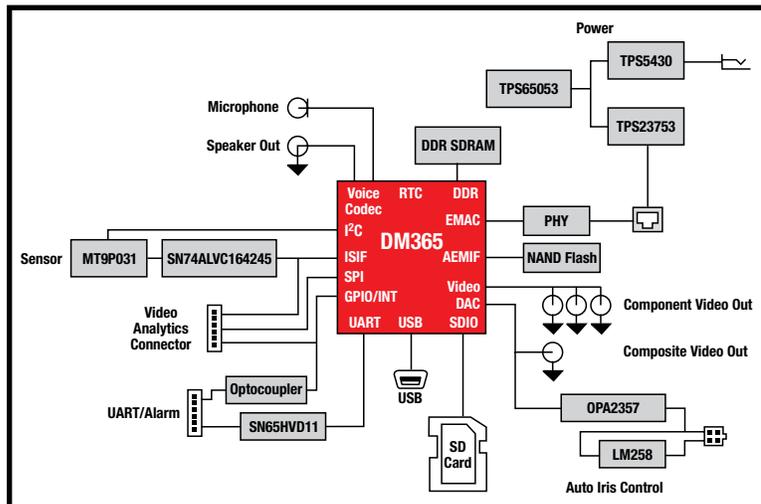
Software features

- Complete Linux-based IP net camera application including free source code
- Encode up to H.264/MPEG-4 HD 1080p at reduced frame rate or 720p full frame rate



▲ DM365IPNC-MT5 IP Camera Reference Design available from Appro Photoelectron Inc.

- Triple stream per channel (H.264, MPEG-4, MJPEG)
- Integrated auto white balance and auto exposure
- Royalty-free, production-ready codecs included
- Software framework includes input/output and media APIs, codec engine
- Ability to add video analytics with DaVinci™ TMS320DM643x DSP
- PSIA standard support



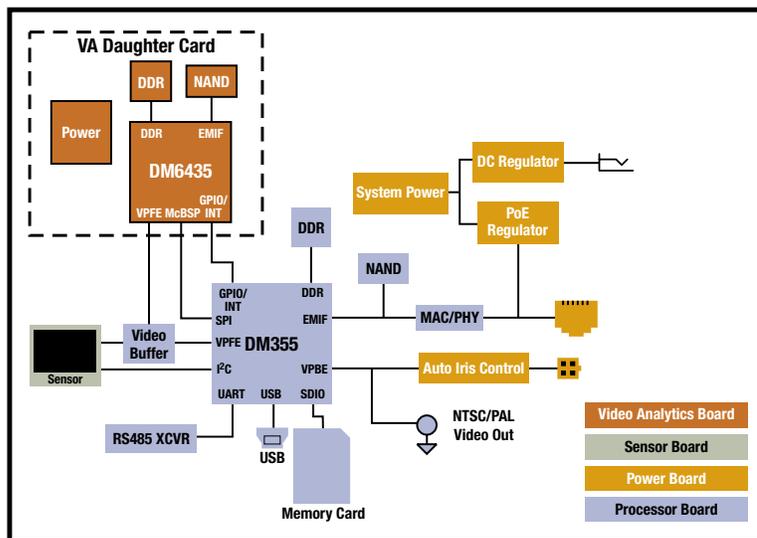
▲ DM365 IP Camera Reference Design block diagram: DM365IPNC-MT5

Video Content Analysis (VCA) DM355 IP Camera Reference Design: DM355IPNC-VCA1 @ U.S. \$995

TI and Object Video have brought to market the VCA version of the DM355-based IP camera which supports Object Video intelligent video analytics. The analytics software provides simple monitoring and notification of security events through a web browser. This reference design builds on the base solution (DM355IPNC-MT5) with a VCA daughter board.

Hardware features

- TMS320DM6435 DaVinci video processor
- DaVinci TMS320DM355 SoC, ARM926 and hardware video coprocessor



▲ VCA DM355 IP Camera Reference Design block diagram: DM355IPNC-VCA1



▲ DM355IPNC-VCA1 IP Camera Reference Design available from Zero One Technology

- Aptina 5 MP sensor (2x2 binning ~1.3 MP)
- VCA daughter board size 41x40 mm

Software features

- Complete Linux-based IP network camera application including free source code
- Dual-stream capabilities
 - MPEG-4 HD 720P + MPEG-4 CIF + G.711

- Triple-stream capabilities
 - MPEG-4 HD 720P + MJPEG VGA + MJPEG CIF + G.711
- Integrated auto white balance and auto exposure
- Field-proven, robust, royalty-free bundled MPEG-4 and MJPEG video codecs
- DaVinci IP camera software framework including I/O APIs, media APIs and DaVinci Codec Engine

TMS320DM355 IP Camera Reference Design: DM355IPNC-MT5 @ U.S. \$795

TI and Aptina Imaging (a division of Micron) have brought to market the original DM355-based IP camera highly optimized reference design.

Hardware features

- TMS320DM355 SoC, ARM926 and hardware video coprocessor
- Aptina 5 MP sensor (2x2 binning ~1.3 MP) CMOS imager optimized for low-light performance
- Board size 65x50 mm
- Low power (< 3W)

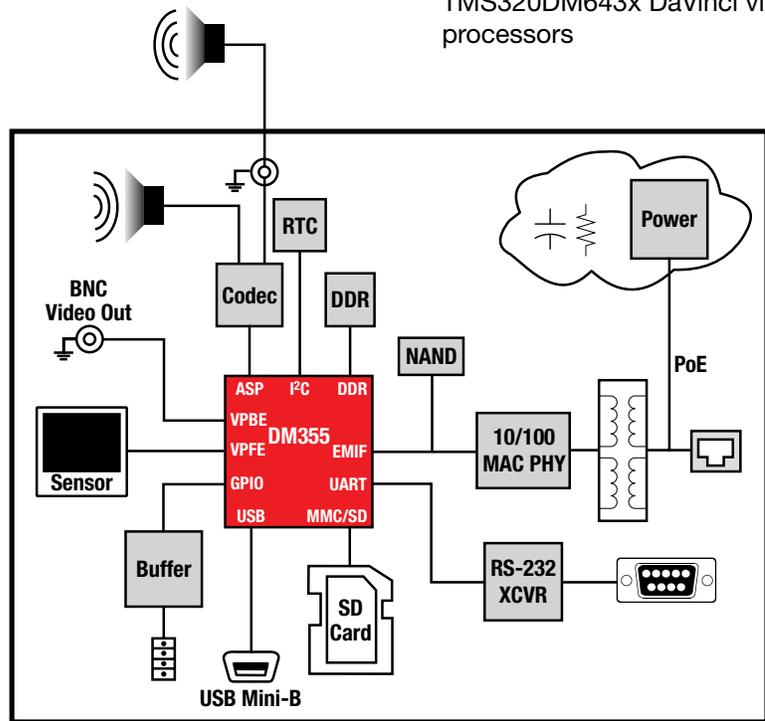
Software features

- Complete Linux-based IP camera application including free source code

- Dual-stream capabilities
 - MPEG-4 HD 720p + MPEG-4 CIF + G.711
 - MPEG-4 HD 720p + MJPEG CIF + G.711
- Integrated auto white balance and auto exposure
- Field-proven, robust, royalty-free bundled MPEG-4 and MJPEG video codecs
- DaVinci™ IP camera software framework including I/O APIs, media APIs and DaVinci Codec Engine
- Ability to add video analytics with TMS320DM643x DaVinci video processors



▲ DM355IPNC-MT5 IP Camera Reference Design available from Appro Photoelectron Inc.



▲ Base DM355 IP Camera Reference Design block diagram: DM355IPNC-MT5

www.ti.com/ipcamera

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