HD Video Surveillance IP Camera Reference Designs

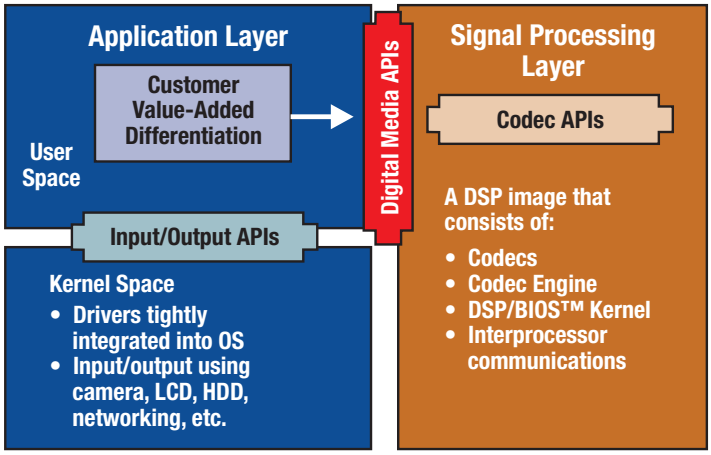
IP Camera Solutions Enable Quick Product Development at Analog Camera Price Points

Texas Instruments offers multiple highly optimized reference designs based on the TMS320DM3xx and DMVA1 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 90 percent
- Deliver higher quality, full 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 schematics
- Gerber files
- Support for select Aptina, Omnivision and Sony image sensors
- Free Linux application source code, including:
  - Simple motion detection
  - Integrated auto white balance and auto exposure
  - Tri-streaming HD H.264 HP, MPEG-4 and MJPEG with smart codec technology
  - Advanced features: Lens distortion correction, face detection, face recognition, 2-D/3-D video noise filters, global dynamic range enhancement, AES encryption, OSD, mirroring and privacy masking
  - PSIA standard compliancy
  - 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 DM36x-based IP camera solutions are:

- **Smart Analytics IP Camera Reference Design** (part #: DMVA1IPNC-MT5): Single platform solution provides H.264 D1 30fps + H.264 CIF 30fps + Smart Analytics
- **DM36x IP Camera Reference Design** (part #: DM368IPNC-MT5): Single-platform solution provides full HD, 1080p30
- **DM365 IP Camera Reference Design** (part #: DM365IPNC-MT5): Single-platform solution provides H.264 in HD with tri-streaming
- **DM355 IP Camera Reference Design** (part #: DM355IPNC-MT5): Single-platform solution provides MPEG-4 in HD with tri-streaming

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

DMVA1 IP Camera Reference Design with Integrated Smart Video Analytics @ U.S. $795

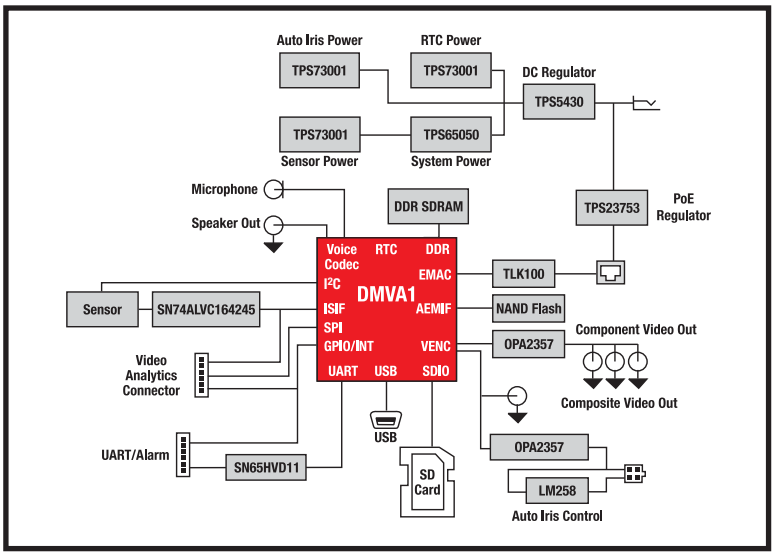
TI's latest reference design provides entry-level analytics including people counting, trip zone, intelligent motion detection, camera tamper detection and streaming metadata.

Hardware features

- TMS320DMVA1 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

- TI smart video analytics which includes camera tamper detection, intelligent motion detection, trip zone, people counting and streaming metadata



▲ *DMVA1 IP Camera Reference Design block diagram: DMVA1IPNC-MT5*

▲ *DMVA1IPNC-MT5 IP Camera Reference Design available from Appro Photoelectron Inc.*

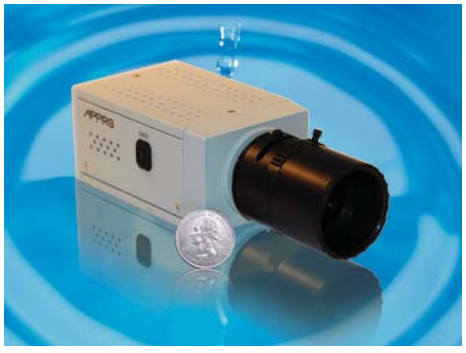
- Smart Analytics GUI for setup, control and management of each of the Smart Analytics applications
- Complete Linux-based IP camera application including free source code
- Encode up to H.264 high profile. Level 3.1 D1 at 30 fps or 720p at 10 fps including MPEG-4 and MJPEG support
- TI's second-generation advanced graphical user interface
- Integrated auto white balance and auto exposure
- Face detection and privacy masking
- New TI royalty-free, production-ready smart codec included
- Software framework includes input/output and media APIs, codec engine
- Ability to add additional video analytics with DaVinci TMS320DM643x DSP

DM368 IP Camera Reference Design: H.264 main profile 1080p at 30 fps DM368IPNC-MT5 @ U.S. $995

TI's DM36x 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.

Hardware features

- TI's TMS320DM36x 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
- PSIA compliant



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

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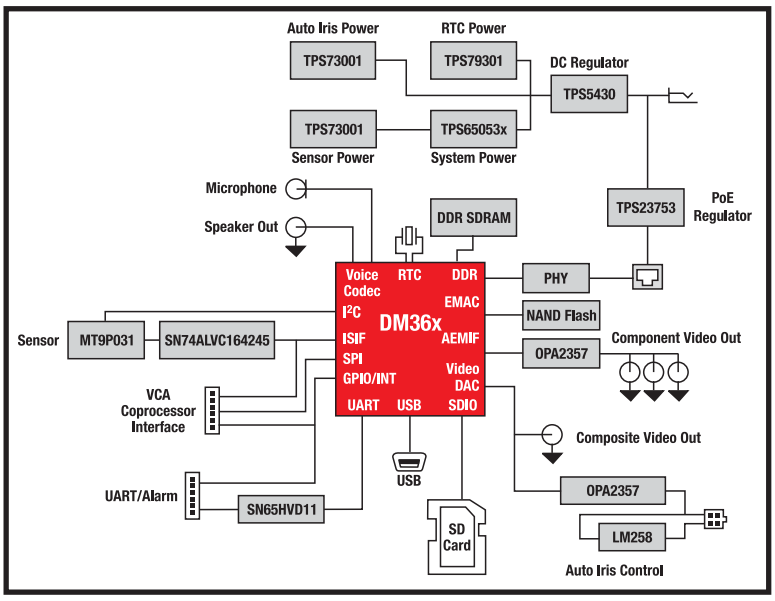
Software features

- Complete Linux-based IP camera application including free source code
- TI's second-generation advanced graphical user interface
- 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
- PSIA standard support



IP Camera Reference Design block diagram: DM368IPNC-MT5

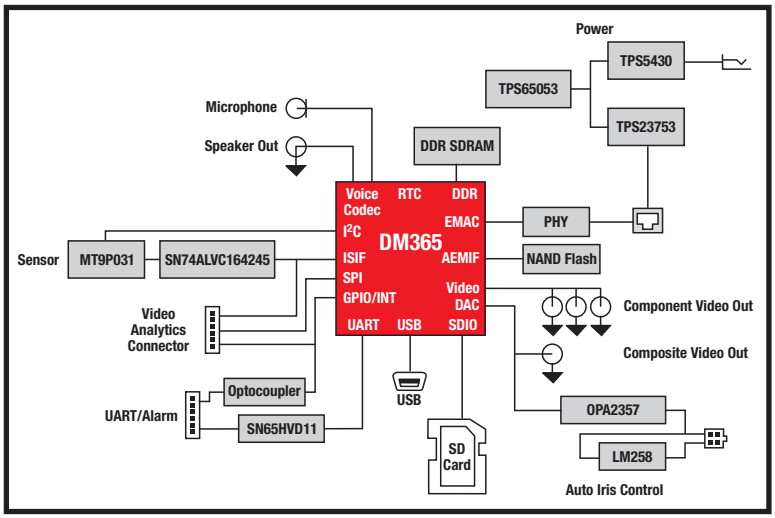
DM365 IP Camera Reference Design: DM365IPNC-MT5 @ U.S. $795

TI's DM365 reference design is a single-platform solution that provides H.264 in HD with tri-streaming.

Hardware features

- TI TMS320DM365 DaVinci™ video processor includes ARM926 @ 300 MHz and H.264 HW 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

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



DM365 IP Camera Reference Design block diagram: DM365IPNC-MT5

Software features

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

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

The DM355-based IP camera highly optimized reference design is a single-platform solution providing MPEG-4 and HD with tri-streaming.

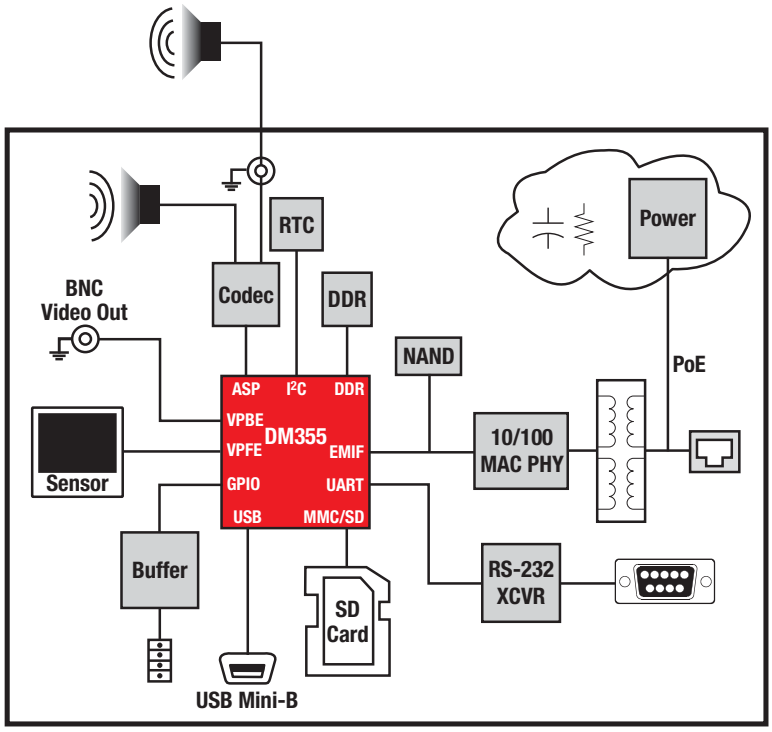
Hardware features

- TMS320DM355 SoC, ARM926 @ 270 MHz and hardware video coprocessor
- Board size 65×50 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

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



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

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Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265