Extraordinary OMAP™ mobile computing experiences delivered through intelligent processing

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OMAP™ processor-enabled user experiences and trends

Computational photography

Augmented reality

Mobile security

Advanced UI

Gestures + projection

HD video conferencing
How the OMAP™ 5 platform reduces power consumption at the chip level

Utilizes an intelligent combination of many different processing cores – each tailored and power-optimized for specific functions – and all harmonized to provide the best possible user experience.

- Individual, dedicated engines for:
  - Video
  - Imaging and vision
  - DSP
  - 3D graphics
  - 2D graphics
  - Display
  - Security

- Two ARM® Cortex™-M4 cores
  - Offloads real-time processing from the Cortex-A15 cores
  - Improve low-level control and responsiveness of mobile devices
OMAP™ 4 processor: A solid foundation for high performance and energy efficiency

- Graphics performance outshines competitive devices by 30-40%
- Graphics synergy, with 2x more layered frames composition than competitive solutions
- True HD record and playback (1080p 30fps) on various codec formats
- Complements the future OMAP 5 platform
The OMAP™ processor difference: HD videoconferencing

- HD (simultaneous encode/decode at 1080p)
- Image quality (high ISO noise filter, sharpness, color and tone, distortion corrections)
- Low bit rate (HW codecs, ROI)
- Low latency (Slice-based)
- Low power (ISP, IVAHD blocks)
- New features (multi-party, background substitution, collaboration)
- Easy integration of 3P video conferencing stack
The OMAP™ processor difference: Computational photography

- ISP high resolution, performance and features set including HW face detection, pixel processing, high quality video (video noise filter, high ISO noise filter, sharpness, color and tone, distortion corrections)
- System-level optimizations (alpha-blending, face detection, etc.)
- CV-optimized camera control APIs (vision camera) for 2D camera from OMAP4470 processor
- Hardware-accelerated low-level CV and imaging kernels (VLIB, IMGLIB)
The OMAP™ processor difference: Augmented reality

- Hardware-accelerated low-level CV and imaging kernels (VLIB, IMGLIB)
- CV-optimized camera control APIs (vision camera)
- System-level optimizations (DSS, alpha-blending, face detection, etc.)
- Advanced CV functionality [3D depth maps using TISMO, homographic transformations (RVM), etc.]
- Graphics-rendering optimizations (SGX-specific extensions and texture compression techniques)
The OMAP™ processor difference: Advanced UI

- High-resolution multiple display support
- Hardware video overlay allows efficient video overlay
- High memory BW feeds the display data rate while still supplying BW for application
- GPU and hardware compositing engine capability blends multiple application layers
- Dedicated 2D hardware (OMAP4470 processor, OMAP 5 platform) for composition frees the GPU for content creation
- High fill rate (MPix/s) for responsive, smooth animations and transition effect in UI
- Other accelerated functionality like face recognition and eye tracking using hardware face detection
The OMAP™ processor difference: Mobile security

- M-Shield™ mobile security technology and SMC
  - Can implement TEE with secure memory space for secured applications
  - Offers secured vault
- Hardware crypto-accelerators
  - For all encryptions accelerated in hardware
- Secure clock
  - For anti-rollback
- Private and public keys
  - Coupled to SMC, provides fully secure OTA mechanism