eInfochips Overview – Product Design Services

- 20 Years
- 1400+ Engineers
- Quality
  - ISO9001, AS9100
- 300
  - Sys. SW Engineers
- 500+
  - Products
- 450
  - HW Engineers

Clientele:
- Leader in Commercial Aerospace
- Pioneers in Video Analytics
- 2nd Largest in US Retail Chain
- World Leader in Semiconductor Sales

Leading manufacturer of Display Panel
- World Leader in Biometric Access
- Leader in IP Surveillance Camera
- World Leader in ATM Machines

Industries:
- Aerospace
- Semiconductor
- Industrial Automation
- Medical Devices
- Security Surveillance
- Automotive
- Consumer
- Media/ Broadcast
Experience in Designing Innovative Products

- Smallest Endoscopy Unit
- Multi-level Biometric Access Control
- Android-based IFE
- 4K Camera

- Satellite based aircraft navigation system
- WirelessHART Gateway
- Dual Car & Marine Navigation

Designed by eInfochips
Hardware-to-Software Expertise

Design
- Specification
- Board Design
- Industrial/Mechanical Design
- Prototype and Production

Development
- Board Support Package
- System Software
- Application Software
- Performance Optimization

QA & Validation
- System Validation
- Test Automation
- Compliance / Certification
- Production QC

Re-Engineering
- Customization / Localization
- Enhancement
- Platform Migration
- BoM Optimization
Launched Partnership with Texas Instruments for DaVinci Platforms

eInfochips developed EVMs and reference designs based on TI Platforms

Enabled multiple products on TI Platform including Camera, A/V solution, Transcoding engine

eInfochips become one of Top 5 3rd Party Partners of TI; Partnership with Freescale; PowerQUICC™ based EVM Kit

Launched a i.MX6 SoM and enabled products on i.MX series
Active Member of Intel IoT Solution Alliance;

TI Keystone - K2E (Edison), K2L (Lamar) Reference Designs released
Licensee to Qualcomm® Snapdragon™ 600 and 410 Processor
Qualcomm® - eInfochips - Arrow Partnership

Solutions based on Snapdragon™ 600 (APQ 8064) & Snapdragon 410 (APQ 8016)

Enabling Embedded Markets Globally

- System on Module
- Development Kit
- Embedded SW & Custom HW Design
- Certification – UL, CE, FCC, EMI, EMC
- Global Support
- Industry specific Demos / PoCs
- Solution Approach for End-to-End Product Development
ERAGON 600 SOM

- High performance module based on Qualcomm® Snapdragon™ 600
- Form factor: 82mmx78mm
- MXM 3.0 Connector
- 2GB on-board DDR3
- 4 GB eMMC Flash expandable up to 64 GB
- Temperature range: -20°C to +70°C

ERAGON 600 Development Kit

- Dual camera support (MIPI CSI) for up to 21 Megapixel
- Integrated WiFi+BT Module
- On board Audio: 7.1 channel playback, 5.1 channel capture with Echo Noise cancellation
- On board 2.4GHz Zigbee Module; 10/100/1000bT Ethernet
- OS Support: Android (5.0), Linux
- 7” inch MIPI LCD Display (Optional)
- Commercial and industrial grade versions

Under Development: SBC
Future: Quick Turn Solution for MicroSoM, SMARC
Wireless Camera based on APQ 8016 (Snapdragon 410)

Solution Components

- Snapdragon 410 (Quad Core – 1.4 GHz per core)
- 64-bit Architecture
- PMIC with Audio CODEC support
- eMCP (DDR3 + eMMC)
- Image Sensor interfaced over CSI with APQ 8016
- Supports H.264 – VGA resolution 30 fps
- Upgradable to supports H.264 encoding upto 1080p 30 fps
Domain and Technologies

SECURITY & SURVEILLANCE EXPERIENCE
Security & Surveillance Domain Expertise

- Camera Designs
- NVR / DVR
- Vigil360
- VMS
- Video Analytics
- Identity Management
- Component IPs

- 100+ Products
- 1M+ Deployments
- 130+ Countries
- 30+ Clients
- 350+ Professionals
- 15+ Accelerators
IP and Analog Camera Designs

Domestic, commercial, enterprise and military deployments

- Onboard Analytics
- ONVIF Compliant
- Pan-Tilt-Zoom
- High Definition
- Power-over-Ethernet
- Reference Design
- IP and Analog Support
- Night Vision

20+ Designs for multiple Fortune 100 Companies
NVR and DVR Products

- Software and System implementation
- Analog, Digital and Hybrid designs
- Ethernet and Wi-Fi Connectivity
- Encryption with proprietary VMS Player
- 7 Client Patents on modular Mobile NVR
- Concept-to-Production solutions
- eInfochips IP - Reference Design

Innovative Design Award for Camera + NVR
Video Management and Video Analytics

*Video Management Software*

- Vigil360 Video Management Software is available for clients as a white-label product
- The Vigil360 IP is flexible to accommodate customizations based on deployment scenarios

*Video Analytics*

Experience on real-time and forensic analysis
- Motion Detection
- Tripwire
- License Plate Recognition
- People Counting
- Object Detection
- Object Tracking
- Privacy Mask
- Face Recognition

*Deployed by Kroger with retail-specific features*

*Onboard Real-time Analytics*  
*Offline VMS Forensics*

First to implement OV algorithms on TI Platforms
**Proven solution components to increase solution predictability and reduce time-to-market for Fortune 100 companies**

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Security and Surveillance

END-TO-END SOLUTIONS
Retail Site Intelligence

Internet-of-Things (IoT) + Big-data Analytics for retail stores, developed for Kroger

• Loss Prevention, Operational Efficiency and Customer Satisfaction through one solution
• Video Analytics for data-driven decisions
• Multiple products as an integrated solution
  – ZigBee enabled PTZ IP Camera
  – Portable Scanner
  – Sensors – Weight, Door, Temperature, Proximity
  – Video Management and Analytics Software IP (Vigil360)
• Solution Website www.retail-site-intelligence.com

Video | Zigbee | Analytics | RFID | Barcode | Cloud | Audio
Home Automation and Security

Internet-of-Things (IoT) implementation for Home Automation System

- Deployed in over 500K Homes in the USA
- Interoperable with 80+ Peripherals
- Over-the-Air update from QNX to Android
- Sensor Network over Zigbee and Wi-Fi
- IP Camera with live feed on mobile app
- Seamless Web, Mobile and Device Interface
- Smart Energy based scheduling features
Internet-of-Things (IoT) implementation for Mass Transit Systems (via the Idea Lab)

- Modular 12-Channel NVR
- 6/4 Channel variants for emerging markets
- Fan-less Hardware supporting 12 PoE Cameras
- Multiple Patents filed by the client
- 30-day recording capacity
- Pre-event HD recording feature
- Automatic content extraction over Wi-Fi
- Metadata Insertion
- Communication over cellular networks

GPS | PoE | CANBUS | Wi-Fi | 3G Communications | Accelerometer | Encryption
Baby Monitor Solution

Cloud-based solution with over 250K deployments

- Integrated with Dropbox, YouTube and Google+
- QR Code based camera configuration
- Compressed H.264, AAC and MPEG2 TS
- Low latency live streaming player for Android and iOS
- eInfochips IP - RTP/RTSP Client Stack
- Onboard Video Analytics and 2-Way Audio
- Compliant to RFC 2326 and RFC 1889/3550

Hardware | Cloud | Android and iOS | YouTube | Dropbox | Video | Analytics

Cloud based Remote Surveillance and Alerts

Video Storage
Security and Surveillance

CAMERA AND NVR DESIGN
World’s first IP Camera Reference Design on Texas Instruments DSP Platforms

- Real-time Analytics with the full suite of ObjectVideo™ Onboard™ Algorithms
- TI DM6446 DSP + ARM9 Configuration
- Integrated Thermal Sensor
- Power-Over-Ethernet (PoE)
- Embedded Linux and DSP BIOS
- Mechanical Design PTZ Support
- 100 Mbps Wireless Communication Interface
IP Camera Software + Onboard Analytics

Optimized camera software development and sustenance for a Fortune 100 giant

- Platforms: TI DaVinci (low-cost) and TI Netra (high-performance) series
- ONVIF Server Stack Development and Conformance
  - Media, Device, Discovery, Event, PTZ and Analytics Services
- eInfochips IPs – Motion Detection and Privacy Mask
- Licensing Enhancements for Analytics Software Packages
- Onboard Web Server Application Development
- SDK Development to deploy camera as an open platform for applications
Video Analytics Card

Retrofit card to enable legacy IP Camera with Video Analytics

- Full suite of ObjectVideo Onboard® analytics
- Supports the OV Ready™ analytics protocol
- TI DM6435 Digital Media Processor
- Secure memory with unique ID interfaced on I2C bus
- On board power supply
- Small Form Factor : 61 x 44.5 mm (2W)
Night Vision Camera

Electronic design and onboard software with Image Enhancement Algorithms

- Small form factor design for military applications
- Improved visibility and detection
  - Brown-out conditions, rain, haze
- TI DM355 based camera
- 8-layer PCB design for Video Board
- BSP, firmware and driver development
- Test Application Development

Image Enhancement Algorithms for visibility and detection
IP Dome Camera with Onboard DVR

Awarded as the Electronics House Product of the Year

- 1080p (HD) Resolution Support
- Complex, multi-platform hardware
- USB 2.0 for Mass Storage
- GbE Support with PoE
- Onboard SATA Disk for DVR
- Sub-Zero temperature Range
- EMI/EMC FCC Class B Compliant

FPGA Based Design | GbE | PoE | DVR Functionality | USB 2.0

TI DM6435 DSP
Freescale PowerPC MPC8315E
Maxim MG3500 Encoder SoC
Nethra Image Processor – NI9065
Sony IMX036 CMOS Imager
Altera Cyclone III EP3C5U256
NVR Design

**Turnkey solution - Concept to volume production**

- Content encryption with Metadata Insertion
- Designed for cars, buses and trucks
- 6-channel and 4-channel variants
- Suitable for outdoor deployments
- GPS Tracking with 2G/3G/4G modem
- Fan-less electronic design
- Local Display Port
- Field-replaceable and service-friendly design
Security and Surveillance

VIDEO MANAGEMENT, PROCESSING AND ANALYTICS SOFTWARE
Vigil360 VMS is a white label eInfochips IP, deployed by a Fortune 25 company

- Customizable to client requirements
- Motion Detection, Trip Wire, Privacy Mask
- Supports 100+ IP Camera channels
- ONVIF Support with PTZ control
- Integrated map view and control
- Advanced configuration scheduling
- Email and SMS notifications
- Advanced search features
Surveillance Installation Management Software

Serviceability and maintainability on large surveillance installations, for Fortune 100 client

- Support for Windows and MAC OS
- Handles the complete installation lifecycle
- Connectivity over IP Networks
- Intuitive GUI Design
- User Rights Management
- Video Analytics Support
- PTZ Control
- Interoperable with all client camera designs
Mobility Application for Surveillance Management

To enable system administration using tablets and smartphones

- Support for Android (4 Versions) and iOS (3 Versions)
- User Rights Management for Admin and Viewer
- Intuitive views with multiple layouts
- Configure Audio, Video and Presets
- Streaming on H.264 and MJPEG
- 14 video configurations based on codecs, frame rate and resolution
- Motion Detection and privacy mask control
- Porting proprietary protocol and camera drivers

Android | iOS | RTP-RTSP | HTTP | H.264 | MJPEG | G.711 | AAC
Video Processing / Analytics Software QA

QA for all analytics algorithms from a leading vendor

- Achieved 80% automation for UI and Functional tests
- Performance benchmarking for analytics algorithms
- QA and Testing Scope
  - Functional, GUI, Localization, Regression, Stress
  - TestNG, Ant, Quartz, Eclipse, Cam Studio
  - Tool: Selenium RC
  - Scripting: Java

Motion Detection | Tracking | Object ID | People Counting | Tripwire
Thank You

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