

NUVATION

**WORLD-CLASS
ELECTRONIC DESIGN SERVICES**



Nuvation designs embedded systems for technology organizations.

Established since 1997, Nuvation is recognized world-wide as a leading Electronic Design Services (EDS) firm. Our IP and services accelerate electronic product development, from specification to production-ready products. Nuvation succeeds by attracting and retaining top talent across a range of engineering disciplines, utilizing world-class design methodologies, and through our deep commitment to meeting client objectives.

Clients rely on Nuvation to help solve significant technical or business challenges. Many of the world's largest organizations utilize Nuvation services to retain their marketplace edge. Venture-backed startups leverage Nuvation's on-demand, highly-skilled engineering teams to get to market before established competitors.

Our clients realize significant savings in fixed operating costs and non-recurring engineering (NRE) expenses, without sacrificing quality and dependability. Nuvation's track record, strategic alliances, and dedication to our customers' success are unparalleled in the industry.

We look forward to counting you among our many long-term customers and business partners!

WHAT WE DO

NOVATION

EMBEDDED SYSTEM DESIGN ►

FPGA • ASIC • CPLD

Board Design

Signal Integrity

Power Management

Analog Design

Wireless

System Interface

Microprocessor • DSP

Firmware

Product Development

WHAT WE DO

EMBEDDED SYSTEM DESIGN

NUVATION

FPGA • ASIC • CPLD

Architecture, Design, RTL (Verilog/VHDL), Simulation, Synthesis, Timing Analysis, IP Cores, IP Integration, Technology Validation Platforms

BOARD DESIGN

Feasibility Analysis, Architecture, Specifications, Analog, Digital, Mixed-Signal circuit design, Schematic, PCB Layout, Signal Integrity Analysis, Prototyping, Component Engineering, Test Fixture Development, Documentation, Certification

SIGNAL INTEGRITY

Pre & Post Layout Analysis, High-Speed Digital (10GHz+), Precision Analog Design, RF Modeling (to 40 GHz), Layout Constraints Generation, PCB Stackup Analysis, Cross-talk, Noise Figure, Impedance Matching, Ground Bounce, Decoupling, Power/Ground Analysis, Shielding, EMI/EMC, RF Signal, DFT/DFM

POWER MANAGEMENT

Power Supply Design, Precision Voltage and Current Generation, Linear and Switching Regulation, DC/DC and AC/DC Conversion, Battery Management, Hot Swap

ANALOG DESIGN

ADC, DAC, Filters, Sensors, Vector Receivers, Transmitters, Signal conditioning, Control Systems, RF

WIRELESS

Bluetooth, 900MHz, 802.15.4 ZigBee, 802.11 WLAN, Cellular GPRS, FM Subcarrier, GPS, Microwave to 40GHz

SYSTEM INTERFACE

PCI, ePCI, PCI-X, PCI-Express, VME, ISA, USB, Firewire 1394, SCSI, I²C, Serial (Sync/Async), ATA, SATA, FibreChannel, Infiniband, HyperTransport, CSIX, Rapid I/O, Ethernet, GbE, 10GbE, XAUI, SONET, T1/E1, ATM, VoIP, EoS, VPN, ATCA, Custom Interfaces

MICROPROCESSOR • DSP

Architecture, 8/16/32-bit Microcontroller selection, Firmware, Fixed/Floating Point DSP, MATLAB/Simulink, Algorithm Development, Network Processors, Embedded Processors

FIRMWARE

Specifications, Design, Assembly, C/C++, RTOS, Networking Stacks, Custom Protocol Definition, Hardware Control Interface, Application Program Interface (API), Device Drivers, BSPs, BIOS, Libraries, Embedded Application Design, LCD Displays

PRODUCT DEVELOPMENT

Turnkey Product Design, Project Management, Industrial Design (ID), Mechanical Engineering (ME), Chassis, Enclosures, Cabling, Thermal Modeling, System Integration, Design Verification, DFM/DFT/DFx, Test Fixture Development, BIST, JTAG Boundary Scan, ICT Programming, Component Engineering, Document Control, Regulatory Certification



TELECOM · DATACOM

Telecom Systems, Network Storage, Solid State Disks,
Wireless Base Stations, Microwave Communications



BROADCAST VIDEO

Acquisition, Production, Monitoring, Broadcast, Display,
Pro-Audio, Digital Cinema



CONSUMER ELECTRONICS

Handhelds, PC Peripherals, eToys, Home Theater, STB/Res Gateways,
Video Security, Video Conferencing



MEDICAL & SCIENTIFIC

Medical Imaging Systems, Blood Glucose Meters, Motor Control,
Drug Discovery Systems, MassSpec



DEFENSE & AEROSPACE

Video & Imaging, Communications, Display, Ruggedized Systems,
Rocket Motor Controllers, GPS/Thermal, Space/Rad-Hard



SEMICONDUCTOR & TEST

Dev Kits, RTL Verification Platforms, Reference Designs,
Automated Test Equipment, Lab Test Equipment



OTHER MARKETS

Green Power, Gaming, Power tools, Fitness Equipment, Indust Ctrl,
Automotive, High Performance Computing



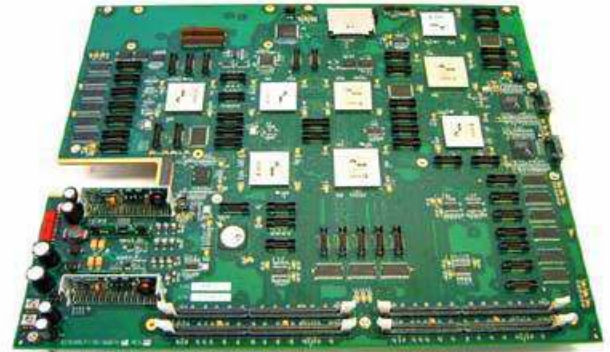
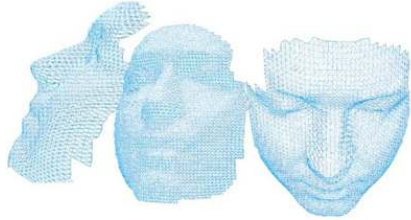
IP CAMERA REFERENCE DESIGN

- Pixim-Based CMOS imager and processor for highest dynamic imaging range (up to 120dB)
- TI DaVinci™ DSP for flexible codec options and video analytics capabilities
- H.264, MPEG-4, MPEG-2, MJPEG encoders
- Ultra-Compact Form Factor (3.25"x1.7"x1.8")



MULTICHANNEL VIDEO FRONT END

- Analog video encoder reference design
- Supports up to 16 video streams for encoding in TI DaVinci™ devices
- 16-bit, 256Mb DDR2 memory interface at 133MHz
- Low-cost Xilinx Spartan-3A FPGA streaming to a TI DM6467 DVEVM



FACIAL RECOGNITION SYSTEM

- IR Laser scans face; IR image sensors record facial data
- Dual-DSP for high-performance 3D imaging
- USB 2.0 (480 mb/s), Ethernet, SDRAM, DDR2, 16-layer board
- Touch screen LCD interface for video feedback and instructions
- Ultra-small form factor (91 x 94mm)

RTL VALIDATION PLATFORM

- Infiniband to 10GbE
- Eight Virtex-II FPGAs (6000/8000)
- DDR Memory
- Over 20,000 nets
- 24-layer board
- 2.5 GHz and 3.125 GHz traces

WHAT WE DESIGN

PROJECT EXAMPLES

NUVATION



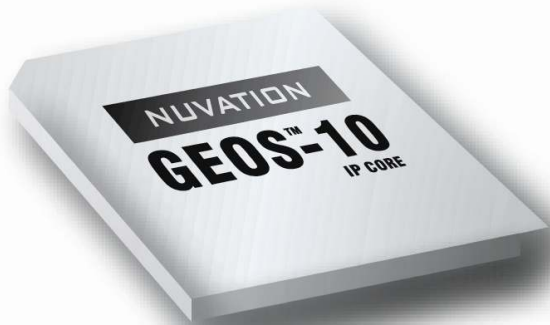
HANDHELD GPS DEVICE

- GPS and 900 MHz radio
- LCD interfacing
- Low-Power PLD and MCU
- Rechargeable Li Ion power circuitry
- Multiple I/O interfaces
- Shock resistant to 2M drop



MEDICAL IMAGING SYSTEM

- Computed Radiography System (digital X-Ray)
- Mixed-signal electronics
- Motor control
- Image Acquisition DMA
- PCI interface
- Real-Time Operating System



ETHERNET OVER SONET IP CORE

- FPGA IP Core for Telecom application
- Up to 10 channels of GbE to SONET OC-192 mux/demux
- GFP-F framing/deframing
- Integrates POS-PHY Level 4 for SPI 4.2
- Jumbo packet handling up to 9.6K
- 100% Bandwidth with 0 dropped packets

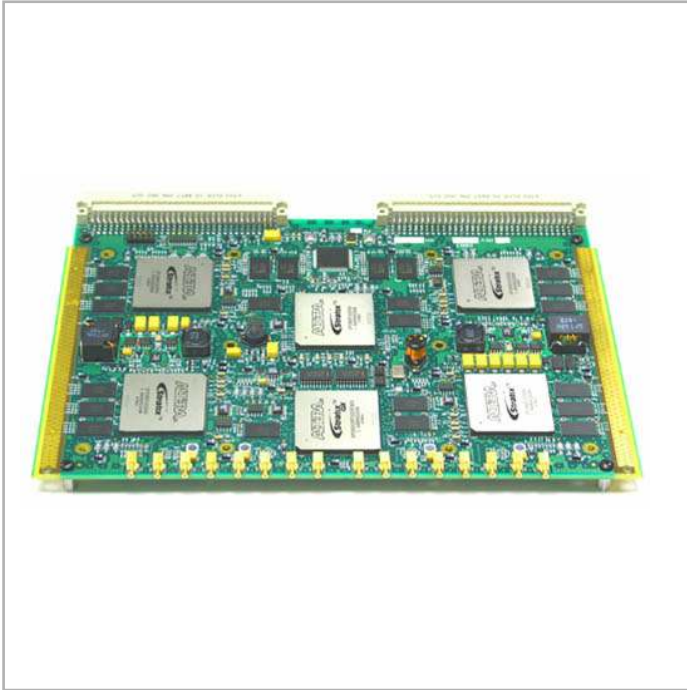
SET-TOP BOX

- Customer Premise Equipment
- RF Receiver, mixed signal design
- Multiple MPEG-2 video streams
- NTSC/PAL
- Custom power supply
- Offshore manufacturing

WHAT WE DESIGN

PROJECT EXAMPLES

NUVATION



SECURE COMMUNICATIONS

- DoD Application
- 5 Altera Stratix I S80's plus GX40
- Over 15,000 nets up to 3.125 GHz
- Nios Processors in each FPGA
- RTL and Firmware-based BIST routine
- 4.5 months from concept to release



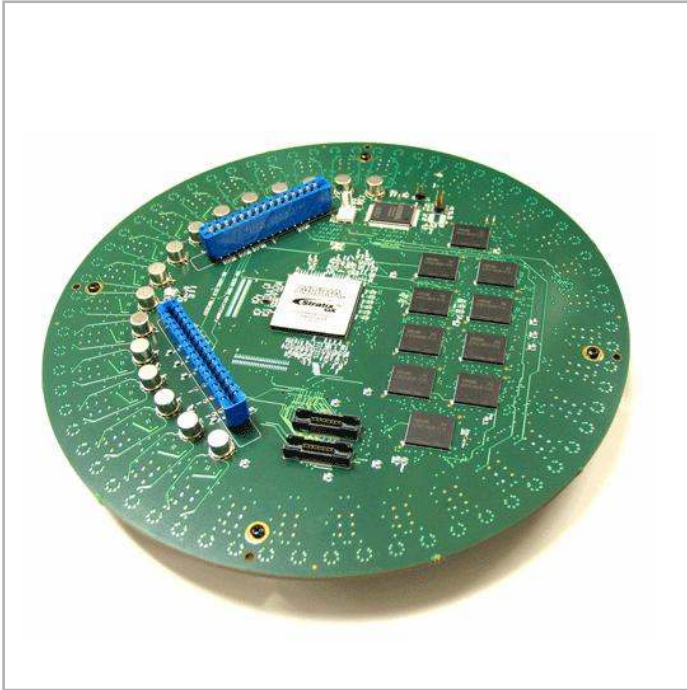
PORTABLE TELEMATICS DEVICE

- FM Subcarrier RF (88 to 108 MHz)
- DARC Decoder
- ARM-based Microprocessor
- Backlit LCD
- USB interface
- Design for High-Volume Manufacturing

WHAT WE DESIGN

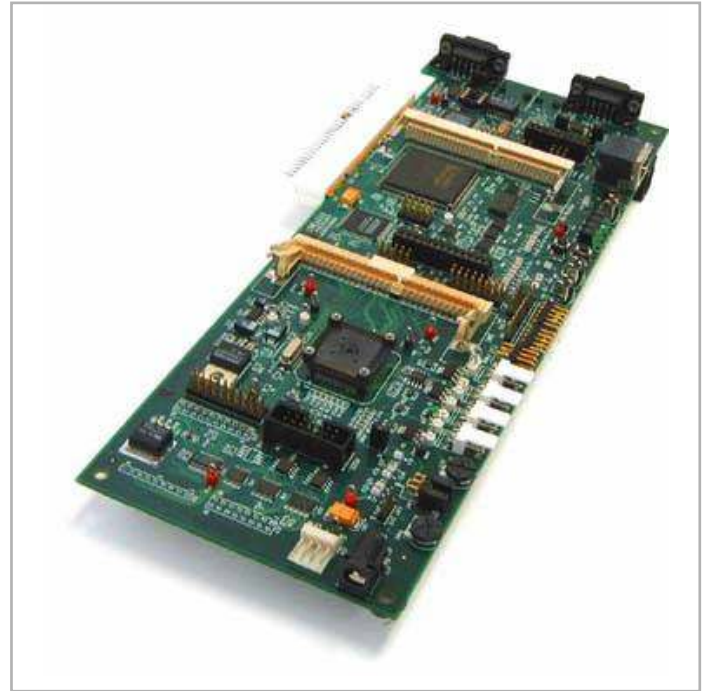
PROJECT EXAMPLES

NUVATION



AUTOMATED TEST EQUIPMENT

- PCI-Express tester
- 16-lane Configuration (total 32 channels at 2.5Gbps)
- 34 layer board, densely routed
- Altera Stratix GX40 with integrated SERDES
- Integrates Nuvation PCI-Express IP Core



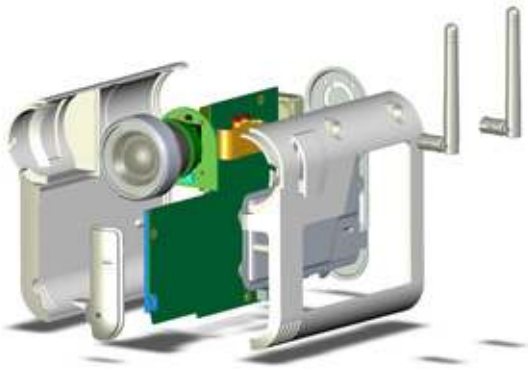
MCU DEMO BOARD

- Semiconductor validation and demonstration application
- Server-specialized 16-bit MCU (IPMI)
- Board designed in parallel with first silicon
- LPC, PCI, Ethernet, I²C, RS-232, RS-485 ports

Nuvation's Engineering Design Methodologies have been embraced by seasoned, serial entrepreneurs and Fortune 100 clients alike.

Our innovative methodologies enable us to compress development schedules by 30-40%. Yet your design is solidly tested, professionally documented, and ready for production.

Our development processes are optimized to the unique aspects of your project such as time-to-market, high-complexity, early proof-of-concept, low-cost of production, or other priorities. Nuvation's world-class methodologies are one of our strongest attributes and a long-lasting benefit we bring to our relationships with our clients.



Our client relationships begin with an exploratory meeting to discuss your business goals, product roadmaps, and areas where Nuvation may add value to your organization. When a project is identified, senior engineers from Nuvation review requirements and timelines, discuss the technical nuances with your team, and formulate preliminary project work plans to meet your requirements. A business proposal is created, outlining the proposed approach, statements of work, and engineering estimates.

When your project begins, a Nuvation Project Manager (PM) is assigned and appropriate engineering resources are allocated for the duration of your project. Nuvation PMs are senior engineers who have demonstrated exceptional engineering, leadership, organizational, and communication skills. Our teams blend senior engineering discipline with the passion and energy of gifted staff engineers. Nuvation has developed a unique culture which is fast paced and fun. Our people enjoy working together and with our clients.

HOW WE DO IT

NUVATION

START



●	DESIGN
	FEASIBILITY ANALYSIS
	ARCHITECTURE
	DESIGN REPORT



●	DEVELOPMENT
	DESIGN IMPLEMENTATION
	SIMULATION
	LAYOUT & FAB



●	PROTOTYPING
	INTEGRATION & TEST
	VERIFICATION
	PRE-PRODUCTION

PROJECT COMPLETION





“Nuvation blew away our expectations and delivered a better product, in less time, than we even considered possible.”

MIKE ICHIRIU • MANAGER • NETLOGIC

“Nuvation exceeded our expectations and helped us get to market ahead of the competition. We have been extremely impressed with their capabilities and look forward to other future projects together.”

BOB SOLLEE • PRESIDENT • AUDIO AUTHORITY

“Nuvation developed a critical piece of our leading broadcast graphics platform, on-schedule and on-budget. We have been impressed with Nuvation's engineering talent and customer service.”

DAN MANCE • CTO • LEITCH TECHNOLOGY

“Nuvation helped us to develop a next-generation Playaway®, our award-winning audio book. We were extremely impressed with their high-volume DFX capabilities and their interactions with us and our key supply chain partners.”

BLAKE SQUIRES • CDO • FINDAWAY WORLD

“Nuvation helped develop our wireless products quickly and efficiently, allowing SpeedInfo to focus our core team on other mission-critical priorities. They have a great work ethic, great breadth and depth of talent, and they're fun to work with!”

RON GOODALL • VP OPERATIONS • SPEEDINFO

“Nuvation has been a longstanding member of TI's DSP Third Party Network and is a key player in our offering of DaVinci™ technology. We have been consistently impressed with their track record for getting designs from concept to production with rapid and predictable time-to-market results.”

JOE RIGAZIO • GM • TI CATALOG DSP & EEE

CLIENTS & PARTNERS

NUVATION

 TEXAS INSTRUMENTS

ALTERA



FUJITSU

 Lucent Technologies

XILINX

xantrex

FlightSafety
International

 JDS Uniphase

ANALOG
DEVICES

ATK

BD

 Agilent Technologies

intel.

Orbital

Boston
Scientific

Infineon
technologies

freescale™

HARRIS

LASERSCOPE

GENERAL MONITORS

SanDisk



ThermoFisher
SCIENTIFIC

credence

power-one

everlz

COHERENT

KLA Tencor

NETLOGIC
MICROSYSTEMS™

entone™

KERI SYSTEMS
INCORPORATED

APPLIED
MATERIALS®



Panasonic

WATLOW

Honeywell

Trimble

GENNUM



DAIMLERCHRYSLER

SANMINA-SCI®

PIXIM
DIGITAL PIXEL SYSTEM



NUVATION

SALES@NUVATION.COM
WWW.NUVATION.COM

TEL +1.408.228.5580
FAX +1.408.228.5590



SILICON VALLEY HEADQUARTERS

3590 NORTH FIRST STREET SAN JOSE, CA, USA 95134 TEL **+1.408.228.5580** FAX **+1.408.228.5590**

WATERLOO DESIGN CENTER

470 WEBER STREET N, SUITE 201 WATERLOO, ON, CANADA N2L 6J2 TEL **+1.519.746.2304** FAX **+1.519.746.2939**