



Capability Statement

Rapid, Accurate Printed Circuit Card Layout and Quality Custom Designs

Xtreme Electronic Designs, Inc. (XEDI) has over 38 years of combined engineering, design, and PCB layout experience. We have completed nearly 3,000 client projects. XEDI is a veteran owned small business (VOSB) that designs and rapidly prototypes embedded systems. We specialize in medical, military, industrial control and photonics products. XEDI maintains a portfolio of embedded products that are sold worldwide. We are a diverse company with varied interests, including helping orphans and missionaries. Our employees are caring, responsible people providing the best service to our clients and the community. XEDI is a drug-free workplace.

XEDI provides complete hardware development and implementation in two integral areas:

- ❖ Turnkey design, build, debug and integration of custom embedded microprocessor & microcontroller systems
- ❖ Small quantity, rapid prototype place, route, and build services

XEDI has vast experience in embedded microprocessor/controller design using:

- ❖ Microchip PIC
- ❖ Motorola 68HX11, 6809
- ❖ Intel 851, 80x86, Atom
- ❖ Xilinx and Altera FPGAs
- ❖ ARM

Our Design Services

We work with clients to define system level and board level architectures. XEDI has experience designing embedded microcontroller systems using Microchip and ARM-based controllers, Xilinx and Altera FPGAs.

Embedded Systems Design and Contract Services

Working on-site with our client, we characterize the system architecture and create a high-level electrical and software system block diagram. By understanding our client's objectives and working closely with their electrical and mechanical engineering departments, we ensure that our new design is form and fit compatible with existing equipment. Next, we enter schematics, place and route the printed circuit boards, fabricate the printed circuit raw cards, and assemble the boards. Finally we bring the boards up to full operation, including client specific software, at our client's site.

❖ Schematic Entry

For custom designs we enter schematics using Cadence OrCAD v17.2. We maintain an extensive parts library to ensure the process is completed quickly and accurately. For client schematics entered in other schematic capture tools, we translate the netlists into Cadence Allegro format, allowing us to seamlessly interface to most schematic tools. Circuit simulation is completed in Cadence PSpice.

❖ Place and Route

All place and route is completed using Cadence Allegro v17.2. XEDI builds custom footprints for all components that do not exist in our libraries, manually places all components, manually routes all nets, and adds split power planes as required by the client. If requested by the client, automatic routing is completed using the Cadence SPECCTRA router. We build custom .do files or use client supplied .do files. XEDI manually cleans all routes using Allegro.

❖ Raw Card Fabrication and Assembly

In a typical turnkey client engagement, XEDI purchases the raw PCBs and stencils, orders all components, creates kitbags, contracts the assembly house, and delivers fully populated boards to the client. XEDI uses several raw card manufacturers capable of producing single day turns of multi-layer cards, a stencil house capable of turning stencils in a single day, and a rapid prototype, ISO 9000 certified assembly house with X-ray capability. XEDI delivers assembled boards in as few as three days.



Custom Embedded Microcontroller Solutions

100 Village Square Crossing
Suite 207
PBG, Florida 33410
(561) 557-3667
Cell: (561) 613-2595
www.XEDI.us

❖ Design Documentation

XEDI creates a CD for the client containing the OrCAD schematics, Allegro board file, bill of materials, Gerbers, and data sheets for all components. Additional documentation, including STEP, .idf and .dxf files, can be generated upon request.

❖ On-site Debug and System Integration

XEDI typically works on-site with our clients to bring-up and debug boards. XEDI writes microcontroller software in C and assembly language. FPGA software is written in Verilog and VHDL. Once board debug is complete, we assist clients, as needed, to integrate boards into the client's target system.

Our Clients

Our client list is broad and varied. XEDI's microcontroller solutions solve system issues ranging from complex thermal management problems in spacecraft to analyzing cell concentration in blood samples. Some of our prominent clients include:

Anspach Ideas	Endeavor Manufacturing	Lenco Marine	Panelogic
AventuSoft	Florida Heat Pump	MIT Lincoln Laboratory	RTP Corporation
Beckman Coulter	Fresh-Aire UV	MPS Racing	Sandia National Laboratory
Caring On Demand	IMTMG	NASA Goddard Space Flight Center	Trividia
Corning	IntuiCode	Nidec Corporation	

In 1997 **Dr. John C. McKeeman** founded McKeeman Consulting and Research, Inc. (MCRI); a rapid prototype design firm specializing in embedded systems. MCRI changed its name to Xtreme Electronic Designs, Inc. in 2005. Dr. McKeeman serves as its president and owner. Dr. McKeeman's experience includes over 37 years of microprocessor/microcontroller design in commercial, military and academic systems.

After completing his BSEE at Virginia Tech in 1980, Dr. McKeeman served on active duty in the Air Force as a satellite signal analyst in the Foreign Technology Division and completed his MSEE and PhD. In 1984, he left active duty and became an Air Force reservist. He served 22 years as a reservist holding leadership positions at HQ Air Force Systems Command, the Office of the Secretary of the Air Force and the AF Research Laboratory. He retired as a Colonel from the Air Force Reserve in 2006 with 26 years of service. His decorations include the Meritorious Service Medal with two oak leaf clusters, an Air Force Commendation Medal and an Air Force achievement medal.

Dr. McKeeman served as an Assistant Professor at Virginia Tech's Bradley Department of Electrical Engineering from 1984 to 1991. He taught graduate and undergraduate classes in microprocessor system design, communications systems, and coding theory. His research focused on real-time embedded systems that track and analyze satellite signals during precipitation. He earned tenure and a promotion to Associate Professor in 1991 before leaving academia to pursue a career at IBM. From 1991 to 1997, IBM leveraged Dr. McKeeman's passion for embedded electronics and used him as a PowerPC embedded systems engineer. He co-developed PowerPC embedded platforms with engineers from Ford, Apple, Corning, and received 17 awards during his IBM career. Dr. McKeeman has authored over 50 publications and holds one patent.

XEDI is a VOSB that designs and rapidly prototypes embedded systems for domestic clients. During the first 20 years of its history, XEDI has completed nearly 3000 projects for government, academic and industrial clients. Further, XEDI maintains a portfolio of embedded system products sold domestically.

Commitment to the Community

XEDI is committed to helping those in need. Some of the programs XEDI supports include: New Life Children's Home (an orphanage in Haiti), Reliant (an international Christian missions organization), a local cancer support group, and several local churches.

CAGE CODE: 5BBA5
DUNS: 607520082

Primary NAICS Codes:
334418, 423690, 541330,
541512, 541690, 541712