

# SIGNAL ENGINEERING, INC.

2015

## Contract Engineering Capabilities

### SPECIALISTS IN THE DESIGN, DEVELOPMENT AND MANUFACTURING OF LOW COST ADVANCED SIGNAL PROCESSING AND COMMUNICATIONS SYSTEMS

**SIGNAL ENGINEERING, INC.** is a small business committed to providing expert engineering support to the United States Government and private industry in all phases of system development in the fields of digital communications and signal processing systems. These capabilities encompass the engineering activities of System Engineering and Analysis, algorithm design, detailed hardware and software design, prototype hardware and software development and production manufacturing. We can also develop and manufacture your product under exclusivity agreements. Our capabilities include:

#### COMMUNICATIONS SYSTEMS

- SATELLITE COMMUNICATIONS
- AIRBORNE TELEMETRY COMMUNICATIONS
- MOBILE COMMUNICATIONS
- ANTI-JAM
- UNDERWATER ACOUSTIC (VOICE/DATA)
- SEARCH AND RESCUE BEACONS AND VOICE TRANSCIEVERS (ELT, PLB, EPIRB)
- NAVIGATION
- SATELLITE SYSTEMS: GOES, GMS, ARGOS, SCD-1, METEOSAT, INSAT, COSPAS/SARSAT, ASTRA, TELESAT, INTELSAT, DSCS, AND AFSAT

#### ENGINEERING DISCIPLINES

- MODULATION AND DEMODULATION
- DETECTION AND ESTIMATION
- ERROR CONTROL CODING/DECODING
- INFORMATION THEORY
- FEEDBACK CONTROL SYSTEMS
- MICROPROCESSORS
- DIGITAL SIGNAL PROCESSING
- ELECTROMAGNETIC FIELD THEORY

#### HARDWARE DESIGN

- HIGH SPEED LOGIC CIRCUITS
- MICROPROCESSOR BASED CIRCUITS
- SPECIAL DSP PROCESSOR DESIGN
- FPGA LOGIC DESIGN
- RF DESIGN (DC to 6 GHz)
- ANALOG DESIGN

#### REAL TIME SOFTWARE DESIGN

- ATMEL AVR 8-BIT RISC PROCESSOR FAMILY
- ATMEL AT91 ARM-BASED PROCESSOR FAMILY
- ANALOG DEVICES SHARC/TigerSHARC DSP FAMILY
- INTEL 8051 PROCESSOR FAMILY

#### SIGNAL PROCESSING

- ANALOG/DIGITAL FILTERING
- SPECTRAL ANALYSIS
- SYNCHRONIZATION TECHNIQUES
- SPREAD SPECTRUM TECHNIQUES
- INTERLEAVING
- MATCHED FILTERING
- CORRELATION
- SIGNAL ACQUISITION & TRACKING CONTROL
- DIGITAL DEMODULATION

#### SYSTEM DESIGN/ANALYSIS

- SYSTEM SPECIFICATION PREPARATION
- COMPUTER SIMULATION MODELING
- LINK ANALYSIS (SATELLITE/TERRESTRIAL)
- PERFORMANCE ANALYSIS
- DSP ALGORITHM DESIGN
- TEST SPECIFICATIONS
- CHANNEL MODELING
- SYSTEM EFFECTIVENESS & AVAILABILITY
- INTERGRATION PLANNING

#### ENGINEERING APPLICATION

- PHASE LOCK LOOPOS (DIGITAL & ANALOG)
- AGD, AFC (DIGITAL & ANALOG)
- DATA COMPRESSION
- IMAGE PROCESSING
- SIGNAL SYNTHESIZERS
- TRANSMITTERS & RECEIVERS
- MODEMS
- CHANNEL SIMULATORS
- SPECIAL TEST EQUIPMENT FOR SYSTEMS, SUBSYSTEMS, AND CIRCUIT CARDS
- SEARCH AND RESCUE BEACONS

#### OPERATOR INTERFACES & APPLICATIONS SOFTWARE

**SIGNAL ENGINEERING'S** particular specialization is in providing custom hardware development of prime item equipment and supporting test equipment. This can include proof of concept models, engineering prototypes, and production model designs. **SIGNAL ENGINEERING'S** capabilities are founded in a very experienced staff possessing considerable breadth in the theoretical basis of communications and signal processing systems and their hardware and software implementations. This includes considerable complementary experience in technical project management. This unique combination of engineering expertise and engineering management results in elegant, innovative, practical low cost technical solutions.

**SIGNAL ENGINEERING** design facilities include the latest in CAD design tools such as Advanced System Modeling software, Solid Modeling Mechanical Packaging, AnSoft Designer tools for Analog/RF circuit design, DSP development workstations, FPGA design, in-house PWB design including flex circuitry, Automation Testing Software and many others.

*CONTACT US FOR FURTHER INFORMATION ON HOW WE CAN HELP YOU AND YOUR COMPANY OR ORGANIZATION IN THE DEVELOPMENT OF ADVANCED SIGNAL PROCESSING AND COMMUNICATIONS SYSTEMS. WE PROVIDE A FULL ENGINEERING SERVICE FROM SYSTEM DESIGN THROUGH MECHANICAL PACKING, CIRCUIT DESIGN AND TEST AND TEST EQUIPMENT DEVELOPMENT WITH FULL DOCUMENTATION TO YOUR REQUIREMENTS.*