

# Signal Engineering Incorporated

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## 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 TRANSCEIVERS (ELT, PLB, EPIRB)  
TIME STAMP RECEIVERS  
NAVIGATION  
SATELLITE SYSTEMS: GOES, GMS, ARGOS, SCD-1, METEOSAT, INSAT, COSPAS/SARSAT, ASTRA, TELESAT,  
INTELSAT, DSCS, and AFSAT

### SIGNAL PROCESSING

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

### ENGINEERING DISCIPLINES

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

### SYSTEM DESIGN/ANALYSIS

SYSTEM SPECIFICATION PREPARATION  
COMPUTER SIMULATION MODELING  
LINK ANALYSIS (SATELLITE/TERRRESTRIAL)  
ORBITAL DYNAMICS  
PERFORMANCE ANALYSIS  
DSP ALGORITHM DESIGN  
TEST SPECIFICATIONS  
CHANNEL MODELING  
SYSTEM EFFECTIVENESS & AVAILABILITY  
INTEGRATION PLANNING

### HARDWARE DESIGN

HIGH SPEED LOGIC CIRCUITS  
MICROPROCESSOR BASED CIRCUITS  
SPECIAL DSP PROCESSOR DESIGN  
PROGRAMMABLE LOGIC DESIGN  
RF DESIGN (DC to 6 GHz)  
ANALOG DESIGN  
GATE ARRAYS

### ENGINEERING APPLICATIONS

PHASE LOCK LOOPS (DIGITAL & ANALOG)  
AGC, AFC (DIGITAL & ANALOG)  
DATA COMPRESSION  
SPEECH CODING (LPC, RELP)  
IMAGE PROCESSING  
SIGNAL SYNTHESIZERS  
TRANSMITTERS & RECEIVERS  
MODEMS  
CHANNEL SIMULATORS  
SPECIAL TEST EQUIPMENT FOR SYSTEMS,  
SUBSYSTEMS, AND CIRCUIT CARDS  
(LabView specialists)  
SEARCH AND RESCUE BEACONS

### 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

### 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.*