



**Electronics Manufacturing Services - Systems Design Services - Repair and Reverse Engineering
Embedded Computers - Systems Engineering, Integration, and Simulation - Program Support**

Low Level Functions:

1. Switch input, debouncing, and auto-repeat
2. Configurable Timers for time based events, delays, measurements and auto-execution
3. Self Power Monitoring and Control (battery applications)
4. SPI Master – Slave
5. I2C Master – Slave
6. RS232 / RS485 Master – Slave
7. External Event recognition and targeted processing

Low Level Specific Hardware Interface Functions:

1. Full Color RGB LED array control.
2. Solid State Accelerometer interface
3. 24 Bit delta-sigma ADC Strain Gage Interface
4. 2.4 GHz RF wireless data network
5. 900 MHz RF wireless data network
6. SD Flash Drive control
8. Navigation Switch Interface
9. Serial EEPROM and FLASH control
10. 10 Mbit Ethernet MAC
11. 100 Mbit Ethernet MAC
12. Hex Switch Interface
13. GPS Interface

Mid-Level Functions:

1. Discrete single, dual, and tri color LED patterning
2. 7 segment LCD / LED display control with printf interface
3. 14 segment LCD / LED display control with printf interface
4. Dot Matrix LCD / LED display control with printf interface
5. Flex configuration alpha-numeric display control with printf interface (8x1, 8x2, 16x1, 16x2, 16x4, 20x1, 20x2, 20x4, 40x1, 40x2, 40x4)
6. Monochrome Graphic Display Control with printf interface
7. Full Color Graphic Display Control with printf interface
8. Distinctive Audio Alert Control
9. Two, three, and four point Automatic Sensor Calibration. (Position, Pressure, Temperature, Flow)
10. EEPROM in Flash emulation
11. High Speed Optical isolated networking
12. Switch Input Pattern Recognition.
13. Event to Time based analog input
14. Time to Event based analog input
15. Audio Sound output and patterning
16. Power Saving Solenoid / Relay / Injector driver
17. Precision optical interrupter position control
18. Hardware State Machine emulation
19. Range Input, Conversion, and Scaling
20. Time based analog data conversion

High Level Functions:

1. CAN Network communications
2. Ethernet Network communications
TCP, UDP, DHCP, TFTP, FTP, HTTP, TELNET, ARP, IP, ICMP
3. RS-485 Proprietary Network communications
4. RF Zigbee Network communications
5. RF Proprietary Network communications
5. FAT16/FAT32 removable flash drive interface
6. Digital low pass, high pass, and band pass filtering
7. VFD (Variable Frequency Drive, three phase motor Acceleration, Speed, Position, and Load control)
8. Servo Motor Acceleration, Speed and Position Control
9. Stepper Motor Acceleration, Speed and Position Control (rotary and linear)
10. Pneumatics Speed, Rate, and Position Control
11. Hydraulics Speed, Rate, and Position Control
12. Audio and Human Voice output
13. Data Pattern Recognition.
14. USB (Universal Serial Bus) connectivity
15. RTOS (Real time operating system)
16. Quadrature Encoder input and fault detection
17. Phase angle motor speed control
18. LIN Network communications
19. Vehicle Ignition control
20. Vehicle Fuel control
21. Closed loop control system
22. Real Time Clock
23. Time and Date stamped data logging
24. DSP and FFT functions
25. Line tensioning
26. Multi-Chemistry Battery Charging
27. System wide diagnostics
28. Standard Error Reporting and Recovery
29. Mixed Network / Translator Bridge
30. Gas Concentration Monitoring