



MINI-MAX/51-C2

MINI-MAX/51-C2 is a general purpose, low-cost and highly-expandable micro-controller system. It is based on the ATMEL AT89C51ED2 single-chip Flash micro-controller.

- 64K Flash, 2K RAM, 2K internal EEPROM
- 512-byte Serial EEPROM (upto optional 128K)
- 9-sources of 4-level Interrupts
- Programmable Counter Array
- Pulse Width Modulator
- Three 16 bit Timer/Counters
- Hardware SPI Serial Interface
- Programmable Watchdog Timer, Brownout Detector
- 32 general purpose I/O pins
- RS232 Serial Port
- In-circuit Programming through the serial port
- 5-channel, 10-bit Analog/Digital Converter
- Keypad connector, LCD connector (with programmable contrast adjustment for LCD)
- Expansion bus interface to low-cost peripheral boards



MINI-MAX Set II:

- MINI-MAX/51-C2 Micro-controller Board
- TB-1 Training Board with 4-ch, 8-bit Analog/Digital Converter, buzzer, traffic lights, counter and interrupt inputs
- 2-row alphanumeric Liquid Crystal Display (LCD), Matrix Keypad
- BASCOM51 BASIC Compiler Demo version (size restricted)
- Micro-IDE Integrated Development Environment
- Serial cable, Power Supply, Online User's Guide, Example Projects



MINI-MAX/51-E

MINI-MAX/51-E is a MINI-MAX/51-C2 compatible microcontroller board with the ATMEL AT89C51ED2 chip and a built-in Ethernet controller.

- ATMEL AT89C51ED2: 44 Mhz Microcontroller, 64K Flash, 2K RAM, 2K EEPROM
- CS8900 10Mbit Ethernet controller
- Full open source TCP/IP stack. It includes all layers: CS8900/ARP/IP/ICMP/TCP
- IPX layer. Users can use this layer on a local network. Visual C++ example is provided
- MINI-MAX/51-E Board is connector compatible with MINI-MAX/51-C2.
- Many project examples with full source code, including web server, IPX server, telnet server.



Please see **Web Server** section for **WebCat** product based on this board.

MINI-MAX/51-D

MINI-MAX/51-D is a low-cost and highly-expandable micro-controller system. It is based on the ATMEL AT89C51ED2 single-chip Flash micro-controller.

- ATMEL AT89C51ED2 44 Mhz Microcontroller, 64K Flash, 2K RAM, 2K EEPROM
- 32 Digital Input/Output Lines
- LCD, keypad and Expansion bus interface to low-cost peripheral boards.
- In-System Programming/Debugging
- Powerful, yet affordable development software options include Micro-IDE, Micro C Compiler, SDCC C Compiler, BASCOM51 BASIC Compiler, Serial loader, simulator and debugger.
- Requires Regulated 5V DC.
- RS232 Serial Port.



MINI-MAX/51-F

MINI-MAX/51-F is a 8051 flash microcontroller system with 8-channel 18-bit ADC and 4-channel 16-bit DAC. Based on Texas Instruments MSC1211Y4 microcontroller.

- 16K Flash program memory, 1.2K XRAM, serial EEPROM
- RS232 Serial Port
- 32 Digital Input/Output Lines
- 8-Channel 18-Bit (24-bit theoretical) ADC
- 4-Channel 16-Bit DAC, 16-bit PWM
- LCD, keypad and expansion connectors
- In-system programming/debugging
- Unregulated 6-12 Volts DC operation
- 22.1184 MHz clock speed
- 6 Volts DC Adapter, serial cable and serial downloader included





MINI-MAX/11-A

MINI-MAX/11-A is a general purpose, low-cost highly-reliable, and highly expandable micro-controller system. It is based on the Freescale (Motorola) MC68HC11CPU4 high performance micro-controller unit (MCU).

- 1024 bytes of RAM, 512 bytes of EEPROM, 32K FRAM
- 21 Interrupt Sources, Real-time interrupt circuit
- Enhanced 16-bit Timer System, 3 or 4 Input Capture (IC) and 4 or 5 Output Capture (OC) Functions.
- 8-bit Pulse Accumulator
- Synchronous Serial Peripheral Interface (SPI), RS232 Serial Port
- Asynchronous Non-return to Zero (NRZ) Serial Communication Interface (SCI)
- Eight-channel 8-bit ADC. Precision reference voltage source for ADC
- Computer Operating Properly (COP) Watchdog System and Clock Monitor
- Up to 6 MHz bus speed.
- 6-bit Output expander to control LCD module.
- Keypad connector



MINI-MAX/908-C

Single board computer (SBC) with Motorola 68HC908 processor

- Motorola 68HC908-GP32 (68HC08 compatible) micro-controller
- 32K Flash, 512 bytes RAM, 512 bytes serial EEPROM
- 8 channel, 8-bit Analog/Digital Converter
- Universal LCD connector, universal keypad connector, expansion connector
- Operates with unregulated 6-12 VDC
- In-system programming through the RS232 serial port using a PC
- Online User's Guide, 6VDC Adapter and serial cable



6808 Development System: Complete Micro C compiler development package for the MINI-MAX/908-C board. Please see "Complete Development Systems" section.

MicroTRAK-908 Complete: The ultimate 68HC08 Training Kit at a very affordable price. Supports 68HC908-GP32 microcontroller from Motorola. Please see "MicroTRAK - Universal Training Kit for Microcontrollers" section.

MINI-MAX/P18

Single board computer (SBC) with PIC18F458 Flash Microcontroller. MINI-MAX/P18 is a general purpose, low-cost, highly reliable, and highly expandable micro-controller system.

- 32K (16KX16) Flash Memory, 1.5K RAM, 256-byte Data EEPROM, 512-byte EEPROM
- 15 Interrupt Sources
- Two 8-bit Timers / counters with prescalers, one 16-bit timer / counter
- Two 16-bit compare / capture PWM modules
- 10-bit 8-channel ADC, two analog comparators
- Programmable UART, SPI, Master I2C and CANBus Serial Channel
- Programmable Watchdog Timer, Brown-out detector
- 33 general purpose I/O pins
- RS232 Serial Port
- In-circuit Programming of the micro-controller through the serial port
- Keypad connector, LCD connector (with programmable contrast adjustment for LCD)
- Expansion bus interface to low-cost peripheral boards
- (Optional) In-System Debugging support for Microchip ICD2 using PIGGY
- 6 Volts DC Adapter, serial cable, serial downloader, online technical manual and schematics





MINI-MAX/AVR-C

MINI-MAX/AVR-C is a general purpose, low-cost and highly expandable micro-controller system. It is based on the ATMEL ATMEGA2560-16 single-chip Flash micro-controller.

- Up to 16 MIPS Throughput at 16 MHz
- 256K Flash Memory, 8 K of RAM, 4 K of EEPROM
- Two 8 bit Timer/Counters and four 16 bit Timer/Counters, Programmable Watchdog Timer
- SPI Serial Interface, 2-wire Serial Interface (I2C)
- 16 channel 10-bit ADC with selectable 2.56V or 1.1V Reference Voltage
- 86 general purpose I/O pins
- Real time In-System debug support through JTAG Interface
- In-circuit Programming and debugging of the micro-controller through either the JTAG or SPI interface
- Two RS232 Serial Ports and two UART Ports with 5V signals for data communications
- Keypad connector, LCD connector (with programmable contrast adjustment for LCD)
- Expansion bus interface to low-cost peripheral boards
- 6 Volts DC Adapter, serial cable, serial downloader, online technical manual and schematics



M128LM

M128LM is a modern microcontroller with low power consumption and small size, based on an Atmel ATmega128L from the AVR family.

128L is a modern microcontroller with low power consumption and small size, based on an Atmel ATmega128L from the AVR family. It also contains a 128Kb static ram and the necessary circuitry for data retention using either a 3V Lithium battery or a Supercap condenser.



Some models include a pair of 128KB Dataflash memories (Atmel AT45DB011), adding 256kb of data or a 4Mb Dataflash memory (Atmel AT45DB0321), both connected using the SPI bus. An optional socket on the top of the board is available to hold a Multimedia Card with a capacity of between 16Mb and 128Mb, also connected using the SPI bus.

The oscillator is a 4 MHz ceramic resonator. If the micro needs to be run at a different speed, it can be accomplished using the calibrated internal RC oscillator at speeds between 1 and 8 MHz. In addition, the user program can also change the clock speed on the fly.

Program loading is done from a PC via the SPI bus using the Atmel AVR-ISP in-system-programing routines. This can be done using a parallel port programmer. Alternately it can be programmed serially using the onboard bootstrap program (loaded into high Flash memory).

StAVeR-24M32

StAVeR-24M32 is a microcontroller module based on an Atmel ATmega32 in a small DIP24 .

- 30K of Flash code memory, 2K of Flash BOOT code (for downloading code), 1K EEPROM, 2K SRAM
- On board 14.7456MHz Chrystal
- 16 I/O lines on the edge connectors plus 3 more I/O lines (SPI bus) on the red ISP connector
- One external interrupt source, two 8-bit Timers, one 16-bit Timer
- Eight 10bit ADC channels
- I2C hardware interface, Master SPI interface via 6pin connector according to original Atmel ISP programmer but with a smaller header
- Programmed via RS232, no need for external programmer, ESD protected RS232 up to 115.2Kbaud
- On board Green, Yellow and Red LED's



StAVeR-24M32 DevKit2

This kit is a complete starter kit with StAVeR-24M32 mounted on a Carrier Board.

This kit is a complete starter kit with StAVeR-24M32 mounted on a Carrier Board that has 4 buttons, Piezo-buzzer, LCD, a large proto area under the LCD, power regulator and RS232 serial port. The LCD is easily removed (no screws etc.). The kit also contains a serial cable for downloading code and for debugging purposes. The kit includes a power cable which could be connected to a 9VDC battery or any standard 9-12VDC power supply.



StAVeR-24M32/BASCOM

Same as StAVeR-24M32 Devkit2 plus BASCOM AVR BASIC Compiler.



GadgetPC

GadgetPC is a powerful, low-cost, 32-bit ARM9 (AT91SAM9260) based microcontroller system with 5 USB ports for interfacing to a variety of off-the-shelf USB devices. It is capable of running Linux.

The Flash micro-controller can be programmed and debugged through USB. Downloading of programs to the micro-controller typically takes few seconds.

GadgetPC is powered by 5 Volts DC from the USB connector. The total power consumption of the board is less than 1 Watt.



Features:

- ATMEL AT91SAM9260 (ARM9) embedded processor
- 8MB In-System Re-programmable Downloadable DataFlash Memory
- 32MB DDR RAM
- Four USB 2.0 Full Speed (12 Mbit per Second) Host Ports
- 4 USB Host connectors: 2 connectors with dual USB each
- 1 Mini USB Device connector
- UART (TTL level) Serial Interface
- Powered with external 5 Volts through Mini USB Device Connector
- Fully supported in C using our ARM Development System, GNUARM C Compiler, ATMEL SAM-BA, UBOOT and Linux
- USB cable, online technical manual and schematics



We offer **GadgetPC Development Kit**, **GadgetPC Wi-Fi Kit** and **GadgetPC Aircard Kit** to simplify getting started with the board.

GadgetPC Development Kit

Hardware:

- GadgetPC Board
- BRD-RS232-TTL-1 RS232 to TTL Converter
- ADP-5V1A-MiniUSB 5V Adapter with MiniUSB plug
- DUB-E100 USB Ethernet Adapter
- FD-USB-512MB USB Flash Drive

Software:

- Pre-installed Linux
- GadgetPC Linux Release (Windows Installation)
- GadgetPC Support Package for SAM-BA 2.8
- GadgetPC Linux Image

GadgetPC Wi-Fi Kit

Hardware:

- GadgetPC Board
- BRD-RS232-TTL-1 RS232 to TTL Converter
- ADP-5V1A-MiniUSB 5V Adapter with MiniUSB plug
- DUB-E100 USB Ethernet Adapter
- FD-USB-512MB USB Flash Drive

Software:

- Pre-installed Linux
- GadgetPC Linux Release (Windows Installation)
- GadgetPC Support Package for SAM-BA 2.8
- GadgetPC Linux Image

GadgetPC Aircard Kit

Hardware:

- GadgetPC Board
- BRD-RS232-TTL-1 RS232 to TTL Converter
- ADP-5V1A-MiniUSB 5V Adapter with MiniUSB plug
- Sierra Compass 885 aircard
- FD-USB-512MB USB Flash Drive

Software:

- Pre-installed Linux
- GadgetPC Linux Release (Windows Installation)
- GadgetPC Support Package for SAM-BA 2.8
- GadgetPC Linux Image



MINI-MAX/ARM9260-E

MINI-MAX/ARM9260-E is a powerful, 32-bit ARM9 (AT91SAM9260) based microcontroller system with fast Ethernet, USB and graphics LCD interface. It is capable of running Linux.

Please see **Web Server** section for **WebCatPro** product based on this board.



MINI-MAX/ARM-E

The ultimate Internet-ready 32-bit microcontroller board at a truly low cost.

- 14.7456 MHz crystal to achieve 58.9824 MHz core
- Microchip ENC28J60 Ethernet controller with network interface
- 8 Mbit serial FLASH memory (ATMEL DataFlash)
- Two RS232 Serial Port Headers
- Second CPU (ATMEL AVR ATTiny), allowing In-circuit Programming of main CPU through the serial port
- JTAG programming interface
- Keypad connector
- LCD connector (programmable contrast adjustment for the LCD)
- Expansion bus interface to low-cost peripheral boards
- Separate power supplies for 5V and 3.3V, digital and analog circuits
- 32 KHz crystal and a 3 Volt lithium battery (optional), which allows Real Time Clock unit to operate in the absence of external power
- Fully supported in C and ARM Assembly Language using our ARM7 Development System, GNUARM C Compiler and FreeRTOS. Also, supported by IAR Systems Embedded Workbench and J-Link Debugger
- 6 Volts DC Adapter, serial cable, serial downloader, online technical manual and schematics



CPU features:

- 16/32-bit ARM7TDMI-S LPC2138 microcontroller from NXP (Philips) in a tiny LQFP64 package
- 32 KB static RAM (on LPC2138) and 512 KB Flash program memory (on LPC2138)
- 128 bit wide interface/accelerator enables high speed 60 MHz operation
- In-System/In-Application Programming (ISP/IAP) via on-chip boot-loader software
- Embedded ICE RT and Embedded Trace interfaces offer real-time debugging with the on-chip Real Monitor software
- 16-channel 10-bit A/D converter provides a total of up to 16 analog inputs, with conversion times as low as 2.44 usec per channel
- 10-bit D/A converter provides variable analog output
- Two 32-bit timers/external event counters (with four capture and four compare channels each), PWM unit (six outputs) and watchdog
- Multiple serial interfaces including two UARTs (16C550), two Fast I2C-bus (400 kbit/s), SPI and SSP
- Up to 47 5V-tolerant general purpose I/O pins
- Up to 9 edge-sensitive or level-sensitive external interrupt pins available

Please see **Web Server** section for **WebCatPlus** product based on this board.

MINI-MAX/ARM-E

Same as MINI-MAX/ARM-E minus Ethernet.





BSCB BASIC STAMP CARRIER BOARD

BSCB is a low-cost, highly expandable carrier board for BASIC Stamp Microcontroller Modules (BS2).

- 24-pin DIP socket for a BASIC Stamp Module
- RS232 Serial Port connector for applications or for In-circuit Programming of the BASIC Stamp through the serial port. (Serial cable included)
- Single row and dual row 14-pin LCD connectors (with contrast adjustment for LCD)
- 20-pin Expansion connector for plugging peripheral boards
- 6-12 VDC operation (Adapter included). On-board 5 Volt regulator



BSCB board allows interfacing BASIC Stamp to a wide variety of peripheral boards such as:

- Prototyping board (**PROTO-1**)
- Training Board (**TB-1**)
- 4-digit 7-segment LED display board (**LED-1**)
- 12-bit Analog-To-Digital Converter Board (**DAQ-2543**)
- Digital Input/Output Expander Board (**DIO-1**)
- Real time clock board (**RTC**)
- Real time clock + 128 MB flash card board (**MMC/RTC**)
- Terminal board (**Terminal-1**)
- Reed relay board with 4 relays (**Relay-4 reed**)
- Power relay board with 1 or 2 relay (**Relay-1; Relay-2**)
- Stepper motor driver board (**Motor-1**)

BSCB-02

Specifics:

- Secondary Microcontroller (16F818) that adds I/O ports, analog inputs and EEPROM
- 10-pin matrix keypad connector (also usable as generic I/O) 10-pin connector also usable for analog inputs with 5V power and 4.096V reference
- 128 byte EEPROM accessible from BASIC Stamp via the I2C bus
- 4-channel, 10-bit ADC accessible from BASIC Stamp via the I2C bus
- 10-pin connector for analog inputs with 5V VCC and 4.096V Vref. outputs
- Socket for additional EEPROM (accepts up to 128 Kbytes of EEPROM)

BSCB-01

Specifics:

- Prototyping area for adding custom circuits

All supported modules:

Module	Manufacturer	Languages	Description
StAVeR-24M32	Lawicel	C (ICCAVR), BASIC (BASCOM-AVR)	Compatible with BASIC Stamp modules but the language is different
BasicX-24p	BasicX		Totally compatible with BASIC Stamp boards and powerful than BS2
Javelin Stamp Module	Parallax	JAVA	Compatible with BASIC Stamp modules but the language is different
CB220	Cubloc	CUBLOC BASIC	Compatible with BS2
Basic ATOM 24-M	Basic Micro		Compatible with BS2
Basic ATOM Pro 24-M	Basic Micro		Compatible with BS2, faster and more memory than Basic ATOM 24M
BS2, BS2p, BS2e, BS2pe, BS2sx, BS2px	Parallax	PBASIC	

Custom Microcontroller Systems

BiPOM Electronics designs and builds fast turn-around micro-controller system prototypes in any quantity. Systems can be new designs or modifications to our standard micro-controller boards. Taking advantage of rapid development tools and extensive module library from previous designs, new micro-controller systems are created in custom sizes, with multiple Input/Output ports, several RS232 and RS485 ports, various clock speeds, micro-power, high-speed and tiny size depending in customer requirements.