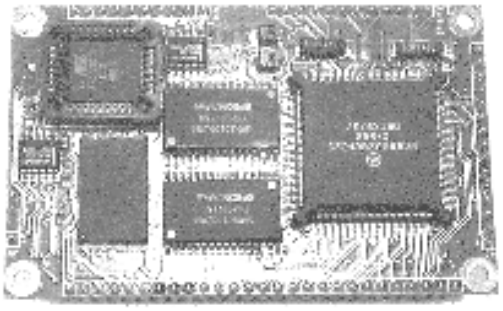
VESTA TECHNOLOGY
EMBEDDED CONTROL SYSTEMS

DATA SHEET

MC2000-332

Features

- High performance, 32 bit microprocessor
- Integrated Time Processing Unit (TPU)
- Socketed, PLCC EPROM
- 128k or 512k x 16 flash, 100,000 write cycles
- 128k or 512k x 16 no wait state BBSRAM
- 128 to 8k byte EEPROM, 1,000,000 write cycles
- 8 channel, 12 bit A/D
- Alphanumeric LCD / 4x4 Keypad ports
- Battery backable Real Time Clock/Calendar
- Background Debugger Mode (BDM) port
- Two RS-232 serial ports
- Dual Watchdog Timers
- Power Supply monitor
- System clock, low power modes
- VAST Network Expansion port
- Only 3.5" x 2.25" in size



Description

The MC2000-332 is physically smaller than an SBC2000 yet has all the power as well as an optional A/D connector. The MC2000-332 has just the pins for the port connectors, without the actual ports. That way the board remains very small and you can add the ports you need without taking up any more space than you have to.

The development kits for this board contain our MC-2000 Development Platform that attaches to the MC2000-332 and provides all the ports for development purposes. Vesta Basic and C development environments are fully supported. Initial program execution begins in 8 bit wide boot ROM. Execution can be transferred to 16 bit wide flash memory for faster execution or 16 bit wide no wait state battery backable RAM for maximum performance.

The integral TPU supports special time related functions such as PWM generation, quadrature decoding, asynchronous serial transfer, pulse generation, input time stamp capture and period measurement. Any TPU channel can generate an interrupt on positive or negative input transitions. 8 A/D, 12 DIO, 10 TPU channels and 7 interrupts are available.

The system clock rate can be changed under program control to minimize power consumption without interrupting operation. A low-power STOP mode is also available. Additionally, the MC2000-332 can turn itself off completely, reducing supply current to zero, and then reactivate itself at a preprogrammed time.
Off-board peripherals are supported by the VAST network and one reconfigurable asynchronous serial channel.

Development Environment

This board can be programmed in Vesta Multi-Tasking Basic, C/C++, or Assembly language. The development kits for this board include our MC2000-332 Development Platform (part number Z12) that attaches to the MC2000-332 and provides all the ports for development purposes.
The byte-wide boot Rom is a standard 27xxx type for easy development.

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Specs

uP	Motorola 68332G, 25 MHz
EPROM	128k, 256k, 512k or 1M x 8 (27Cxxx type) EPROM in 0.6" wide PLCC socket
Flash	128k to 512k x 16, byte writeable, sector erase, sector size 8k, 16k, 32k, 64k bytes
RAN	64k to 512k x 16 SRAM, selectable for external battery backup.
EEPROM	128 bytes to 16k bytes, 1,000,000 write cycles
A/D	8 channel, 12 bit, 0-4.096 volt, 100k sample/sec.
RTC	0.01 second resolution, battery backable with 240 bytes of very low power RAM
Serial Ports	2 RS-232 ports.
Keypad Port	4 x 4 matrix, 200 Ohm resistance max.
LCD Port	Alphanumeric, 80 max characters (2x40 or 4x20)
Watchdog	2, one internal (16 ms to 500 sec reset), one external (1.5 sec reset), both defeatable
Power Monitor	Hold in reset state under 4.65 Volts for 200 mS minimum
Power	5 VDC +/-5%, 80 mA run, 15 mA nap, 8 mA sleep, 0 mA hibernate
Size	3.5" x 2.25"
Temp/RH	-40 to +85C, 5% to 95% non-condensing

SBC2000 Connectors

The following connectors are supported on the MC2000-332 (the MC2000-332 Development Platform interconnection board provides the connector sockets):

The Bus Connector J1AB

These signals are available except if implemented by another function as noted in the table, such as keypad.

Pin	Signal	Function
1	TP0	Used by keypad
2	TP1	Used by keypad
3	TP2	Used by keypad
4	TP3	Used by keypad
5	TP6	Used by BEEP and PWM
6	TP7	Available
7	TP8	Available
8	TP9	Available
9	TP10	Available
10	TP11	Available
11	TP12	Available
12	TP13	Available
13	TP14	Available
14	TP15	Available
15	CS9*	Available
16	CS8*	Available
17	CS5*	Available
18	CS4*	Available
19	CS3*	Available
20	R232B	Available
21	T232B	Available
22	R232A	Available
23	T232A	Used by PTT
24	T/R*	UART at TTL level
25	TXD	UART at TTL level
26	RXD	Short to pin 26 for RS-232 level
27	TTLOUT	

BDM and Interrupts, J3

These signals are used by the Background Debug Mode (used during C development) and Interrupts. Interrupts signals may be used as general purpose digital I/O.

Pin	Signal	Function
1	DSO	Background Debug Mode
2	DSI	Background Debug Mode
3	QUOT	Background Debug Mode
4	DSCLK	Background Debug Mode
5	BERR	Background Debug Mode
6	RESET	Background Debug Mode
7	IRQ7	Available
8	IRQ6	Available
9	IRQ5	Available
10	IRQ4	Available
11	IRQ3	Available
12	IRQ2	Available
13	IRQ1	Available, shared with VAST

Power Connector, J5

Power consumption is approximately 150 mA at 25 MHz. The PWRON* signal is output from the Real Time Clock enabling the system to switch and external power supply back on after power has been shut off. +BATT is connected to an external battery to backup onboard RAM and the Real Time Clock.

Pin	Signal	Function
1	GND	Ground, common with AGND
2	+5	5 VDC, +/- 5%
3	PWRON	Output from RTC
4	+BATT	3 to 5 Volt external battery

Connectors Continued. . .

SBC2000 Connectors ...Continued

Analog Inputs, J4

Analog inputs are normally 0 to 4.096 Volts, 12 bits. However an external reference may be used to scale the inputs to any range between 2.5 Volts and 5 Volts. The internal reference is available for external use.

Pin	Signal	Function
1	AGND	Analog signal ground
2	AIN	Analog input
3	AIN	Analog input
4	AIN	Analog input
5	AIN	Analog input
6	AIN	Analog input
7	AIN	Analog input
8	AIN	Analog input
9	AIN	Analog input
10	VREF	AIN reference, input or output
11	VADJ	Reference fine adjustment

General Purpose Digital I/O and VAST, J2

These signals are available except if implemented by another function as noted in the table, such as LCD, keypad or VAST ports.

Pin	Signal	Function
1	DS*	General purpose digital I/O
2	AS*	General purpose digital I/O
3	SIZ0	General purpose digital I/O
4	SIZ1	General purpose digital I/O
5	DSACK0	Used by VAST, LCD,
6	DSACK1	keypad
7	PCS0	Used by VAST, LCD,
8	PCS1	keypad
9	PCS2	Used by VAST, LCD,
10	PCS3	keypad
11	SCK	Used by VAST, LCD,
12	MOSI	keypad
13	MISO	Used by VAST
14	RMC	Used by VAST, LCD
15	M818	Used by VAST
		Used by LCD
		Input to watchdog

Vesta Technology, Inc.
11049 W. 44th Avenue, Ste. 100
Wheat Ridge, Colorado 80033

www.vestatech.com
303.422.8088
fax: 303.422.9800