

Micronix SBC-2800 series



The SBC-2800
runs Linux

Multipurpose SBC module including:

- 400 MHz ARM9 microcontroller
- GSM/GPRS modem (optional)
- GPS receiver (optional)
- Power supply with 100µA power down
- UPS with Li-Ion charger
- 16 isolated 24-bit A/D channels
- 16 isolated digital I/O
- 2 x USB host, 1 x USB device
- Web interface
- Linux installed



Micronix SBC-2800 is a Single Board Computer module based on the Atmel AT91SAM9G20 microcontroller. A combination of a power supply, a charger for an external Li-Ion battery, a GSM/GPRS modem, a GPS receiver and analogue and digital I/O makes this module very useful in many standalone applications. The SBC-2800 uses the Telit GE863-GPS with a quad band (900/950/1800/1900 MHz) cellular engine and a SiRFstarIII™ single chip GPS receiver.

The power supply can be backed-up by an external Li-Ion battery. A built-in charger will insure that the battery is fully charged. A power down mode with wake-up on timer or external input allows very long operation on battery power.

The SBC-2800 has 16 isolated analogue inputs ($\pm 10V$, 0-2.0V or 0-20mA), enabling data acquisition with a resolution up to 24 bits. 8 digital inputs and 8 digital outputs (all opto-isolated) allow the user to control auxiliary equipment. Wireless communication is supported by the GPRS and SMS features of the GSM/GPRS modem. The SIM card is inserted in a push-push SIM card socket placed on a GSM/GPRS/GPS sub module.

The SBC-2800 comes with a Linux system installed. It has data logging software that logs analogue and digital inputs periodically or based on input events, and stores data in internal RAM or Flash, or on a Micro SD card. The system has a web interface for configuration and data retrieval, accessible through a direct USB connection to a PC, through GPRS, or through Ethernet (using a USB Ethernet adapter).

The Micronix SBC-2800 represents the latest development within GSM/GPRS technology and holds all the necessary approvals (R&TTE and GCF). The SBC-2800 is ideal for data logging and alarm systems. The SBC-2800 withstands extended temperatures, shock and vibration of mobile equipment.

Micronix SBC-2800 Features

- 400 MHz ARM9 microcontroller
- 32 MB on-board RAM
- 8 MB on-board Flash
- Micro SD Flash slot
- Quad-band modem (optional)
- SiRFstarIII™ single chip GPS receiver (optional)
- GPS data via UART port (optional)
- 2 x USB 2.0 Full Speed (12 Mbps) host
- 1 x USB 2.0 Full Speed (12 Mbps) device
- 2 x RS232
- 8 digital inputs, opto-isolated
- 8 digital outputs, opto-isolated
- 16 isolated analogue inputs ($\pm 10V$, 0-2.0V or 0-20mA), 24-bit sigma-delta A/D converter
- Low power consumption
- Wide temperature range: -20° to +70°C
- Low cost

General specifications

Input voltage		Environmental Data	
Max input voltage	7-50V DC, operational	Operating temperature	-20° to 70° C
Output voltage	60V DC	Storage temperature	-40° to 85° C
Power consumption	5V/3A via output connector	Humidity	20 to 90% non-condensing
		Cyclic humidity	ETS 300 019-2-5 or equal
		Vibration	10-1000 Hz Sine and random @ 1-1.5G RMS
		Sustained vibration	EN 60068-2-34 & EN 60068-2-36
		Shock	IEC 60068-2-27 & IEC 60068-2-29
		Size (W x L x H)	90 x 96 x 15 mm
		Weight	150 g (excl. packaging)
Battery charger	Li-Ion, 7.4V 2-3Ah		

Digital I/O specifications			
8 digital inputs, opto-isolated	0-30V	8 digital outputs, Opto-isolated	PNP outputs
Isolation Logic 0 Logic 1 Input current (max) @ 30Vin Connector	Up to 1000Vrms Uin: 0-1.5V Uin: 2.5-30V Iin: 5mA 10-pin box header 2mm	Isolation Max load current External voltage Protection Connector	Up to 1000Vrms 0.5A/output, 1.5A total 5-30V DC Snubber diode at each output 10-pin box header 2mm
Analogue Input specifications			
Number of single ended inputs	Up to 16 with one common	Resolution	Up to 24 bit, depending on conversion speed
Number of differential inputs	Pairs of two can be software configured for up to 8 differential inputs	Conversion speed	6.9 SPS to 3.5 kSPS
Ranges (Must be specified in model no.)	-10V to +10V	0.025% initial accuracy 50 ppm/°C	Isolation
	0V to +2.0V	0.025% initial accuracy 10 ppm/°C	Input impedance
	0 to 20mA	0.025% initial accuracy 50 ppm/°C	Connector type
			1kV, 1 minute
			1MΩ//100pF
			20-pin box header 2mm
Quad Band GSM/GPRS Modem specifications (optional)			
Antenna impedance	50Ω	Fax	Group 3, Class 1
RF Output power	Class 4 (2W) @ 850 / 900MHz Class 1 (1W) @ 1800 / 1900MHz		
Modem Antenna connector	MMCX female RF	CSD data transmission	Transparent up to 14.4 kbps Non-transparent up to 9.6 kbps Non-transparent mode V.110
SMS	Point-to-point mobile originated and mobile terminated SMS SMS cell broadcast Text and PDU mode		
Approvals	Fully type approved conforming with R&TTE CE, GCF, FCC, PTCRB, IC & Anatel		
GPS specifications (optional)			
GPS Chip	SiRFstarIIITM single chip GPS receiver supports 20-channels GPS, L1 1575.42 MHz Cold start < 35 sec Hot start < 3 sec		
Sensitivity	-159 dBm (with active antenna)		
Accuracy	< 2.5 m		
GPS output format	NMEA 0183		
SBAS support	WAAS and EGNOS		
AT commands	Dedicated GPS AT commands		
Antenna connector	MMCX female RF		
Antenna impedance	50Ω		
Models			
Basic features:			
<ul style="list-style-type: none"> ▪ Embedded CPU ARM9-400MHz ▪ Linux-based firmware ▪ 8 MB flash ▪ 32 MB SDRAM ▪ Micro SD Flash adapter ▪ 2 x USB host ▪ 1 x USB device ▪ 2 x RS-232 ▪ 8 digital inputs, isolated ▪ 8 digital outputs, isolated 			
Additional features			
Model number	16 analogue inputs	PSU	UPS/Li-on charger
SBC-2800-1	-10V to +10V	√	√
SBC-2800-2	0V to +2.0V		
SBC-2800-3	0 to 20mA		
SBC-2800A-1	-10V to +10V	√	-
SBC-2800A-2	0V to +2.0V		
SBC-2800A-3	0 to 20mA		
SBC-2800B-1	-10V to +10V	-	-
SBC-2800B-2	0V to +2.0V		
SBC-2800B-3	0 to 20mA		
SBC-2820	-	√	√
SBC-2820A	-	√	-
SBC-2820B	-	-	-
Quad Band GSM/GPRS Modem	These products must be ordered separately.		
Quad Band GSM/GPRS + GPS			