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Genesis
LP3100

- *Low power consumption. Draws as little as 11 mA*
- *512K bytes of flash memory*
- *Unique sleep mode shuts down resources when needed to conserve power and extend battery life*
- *4 conditioned, 12-bit, analog inputs*
- *20 digital I/O lines*
- *2 serial ports*
- *LPBus™ supports user-designed expansion boards*
- *Clock (3 or 6 MHz) is software selectable*
- *Ideal for use in handheld devices or remote, solar-powered applications*

LP3100 Development Board

The LP3100 operates internally at 3.3 V and consumes as little as 11 mA. The LP3100 is small and perfect for reliable operation in portable, handheld, or remote battery-powered systems — anywhere power is limited.

The LP3100 is equipped with 20 digital I/O lines, 4 conditioned 12-bit analog input channels, 2 serial channels, 512K flash memory, a real-time clock with calendar, and an LPBus™ expansion port. The LPBus port facilitates the addition of user-designed expansion boards for use with the LP3100.

The LP3100 has a mode that shuts down the unit to conserve power. Sleep mode, under software control, reduces current consumption to 200 µA. Normal operating mode can be restored by the real-time clock, by an interrupt from the LPBus, or from a digital input.

The 4 conditioned 12-bit analog inputs interface to a wide variety of sensors. Eight of the 20 digital I/O lines are bi-directional. Four lines are dedicated inputs and 8 lines are dedicated outputs.

The real-time clock/calendar allows time-date stamping of critical data. Daylight savings and leap year compensation are user programmable, making the LP3100 ideal for remote applications. In addition, the LP3100 has a large flash memory, making it perfect for data logging.

Programming the LP3100

Programs for the LP3100 are developed using the Dynamic C® 32 software development system described on page 6.

Genesis Tool Kit

The Genesis LP3100 Tool Kit includes a reference manual with schematics, programming cable, AC adapter, Development Board, LPBus™, Prototyping Board, 2 x 20 LCD, 40-pin female connector housing with pre-crimped wires, battery kit, and mounting plate. International orders do not include the AC adapter unless specifically requested.

LP3100 Specifications

Board Size	2.5" x 3.5" x 0.5"
Enclosure Size	N/A
Operating Temp.	–40°C to +70°C
Humidity	5–95%, non-condensing
Power Requirements	3.6–24 V DC, 11mA min., 19 mA typ., 24 mA max, at 6.144 MHz. 11 mA min. at 3.072 MHz. 200 µA standby. Linear regulators
Regulated Output	3.3 V @ 250 mA and 5 V @ 250 mA
Configurable I/O	8 digital lines form a bidirectional parallel I/O port (bytewide programmable) Default as outputs
Digital Inputs	4, accepting 3.3 V or 5 V logic signals
Digital Outputs	8, generating 3.3 V or 5 V logic signals, jumper selectable*
Analog Inputs	4 conditioned 12-bit inputs. Default input range is 0–10 V*
Analog Outputs	No
Processor	Z180 at 6.144 MHz or 3.072 MHz, software selectable
SRAM	128K, surface mount (supports 512K)
Flash EPROM	256K for code, 256K for data storage, surface mount
Counters	2 in hardware, others in software
Serial Ports	2 RS-232 (3 wire) or optionally 1 RS-232 (with RTS/CTS handshake) and 1 RS-485*
Serial Rate	Selected baud rates up to 38,400 bps
Watchdog/Supervisor	Yes
Time/Date Clock	Yes
Backup Battery	Connection for user-supplied battery
Keypad and LCD	Supported on digital I/O lines
Expansion Port	LPBus™

**All configurable jumpers and resistors are surface mount.*

Versions

LP3100 Full-featured SBC. Specifications stated above

LP3110 Same as LP3100, but with 128K of flash for code and 128K flash for data, 32K SRAM, and no RS-485

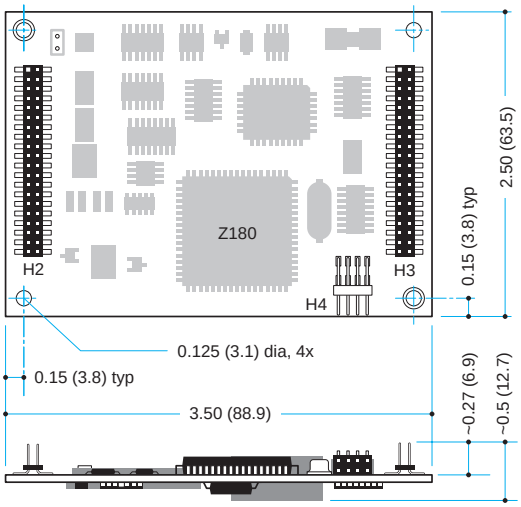
LP3120 Same as LP3110, without analog inputs

LP3130 Same as LP3120, without RTC, + 5 V regulator, or LPBus™ Port. Has 128K flash (and socket for additional 128K flash)

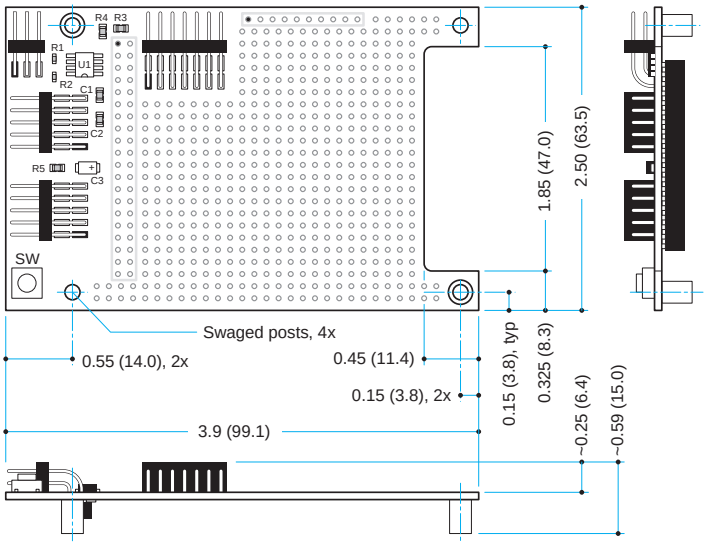
Options and Upgrades

SIB2. Serial Interface Board. Allows programming through the special programming port on the LP3100, leaving other serial channels available. Includes programming cable

SRAM. 128K and 512K. Factory installed



LP3100 Dimensions



LP3100 Development Board

H2

DCIN	1	2	+5V
VCCU	3	4	VBAK
GND	5	6	DINOUT0
DINOUT1	7	8	DINOUT2
DINOUT3	9	10	DINOUT4
DINOUT5	11	12	DINOUT6
DINOUT7	13	14	DOUT0
DOUT1	15	16	DOUT2
DOUT3	17	18	DOUT4
DOUT5	19	20	DOUT6
DOUT7	21	22	DIN0
DIN1	23	24	DIN2
DIN3	25	26	GND
RX0	27	28	TX0
TX1/RTS0	29	30	RX1/CTS0
RS485–	31	32	RS485+
GND	33	34	VREF
AIN0	35	36	AIN1
AIN2	37	38	AIN3
GND	39	40	/PB_RST

DINOUT[0–7] are bidirectional digital lines
DOUT[0–7] are digital output lines
DIN[0–3] are digital input lines

AIN[1–4] are analog input lines

VCCU is "VCC un-interruptable"
VBAK is for/from an external backup battery
+5V is from U2 (VCC is 3.3V, from U3)

RX0, RX1 are serial receive lines, channels 0 and 1
TX0, TX1 are serial transmit lines, channels 0 and 1
RTS0, and CTS0 are handshaking lines for channel 0

VREF (2.5V) is for ratiometric measurements

/PB_RST is for a pushbutton reset