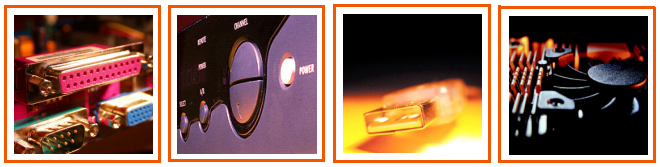
KBC1100L

Mobile KBC with SFI, ADC and DAC with SMSC SentinelAlert!™



PRODUCT FEATURES

Data Brief

- 3.3V Operation with 5V Tolerant Buffers
- ACPI 1.0b/2.0 and PC99a/PC2001 Compliant
- LPC Interface with Clock Run Support
  - Serial IRQ Interface Compatible with Serialized IRQ Support for PCI Systems
  - 15 Direct IRQs
  - Three 8-Bit DMA Channels
  - ACPI SCI Interface
  - nSMI
  - Shadowed write only registers
- LPC/Firmware Hub Host Flash Interface
  - Single Byte FWH Memory Read and FWH Memory Write Support
  - FWH ID Support
  - 16MB FWH Flash and Register Addressing, 128K Legacy BIOS Addressing
  - Single Byte LPC Memory Read and LPC Memory Write Support
- Serial Peripheral Interface (SPI)
  - 2-pin interface with single Data In/Out Data pin
  - Single Ported Controller with Keeper Circuit
- 8 MByte Shared FlashROM Interface (SFI)
  - 8051/Host CPU Hardware Arbitrated Interface
  - 0.5 - 8MB - Host System BIOS & 8051 Keyboard
  - 8051 64KB Code Space Accessible as Separate 32KB Pages in Flash
  - Low-Power Flash Access Modes
  - 8051-Programmable Flash Access Protection
    - Read/Write/No-Access Protection
    - Variable Bank Sizes
- Host Flash Address Redirection for Recovery
- Serial Flash Programming Interface
- Two Power Planes
  - Low Standby Current in Sleep Mode
  - Intelligent Auto Power Management for Super I/O
  - Main powered blocks power supplied by standby power plane and controlled by power management signals
- 3-Port ACPI Embedded Controller Interface
- Configuration Register Set
  - Compatible with ISA Plug-and-Play Standard (Version 1.0a)
  - Four Pin Selectable Addressing Options
  - 8051-Programmable Base Address
- High-Performance Embedded 8051 Keyboard and System Controller
  - Provides System Power Management
  - System Watch Dog Timer (WDT)
  - 8042 Style Host Interface Relocatable to 480 Different Base I/O Addresses
  - Supports Interrupt and Polling Access
  - Interrupt Accelerator
  - 512 Bytes Data RAM
  - 2 Kilobytes Scratch ROM/RAM
  - On-Chip Memory-Mapped Control Registers
  - Up to 18x8 Keyboard Scan Matrix
  - Two 16 Bit Timer/Counters
  - Eleven 8051 Interrupt Sources
  - Thirty-Two 8-Bit, Host/8051 Mailbox Registers
  - Thirty-six Maskable Hardware Wake-Up Events
  - Fast GATEA20
  - Fast CPU_RESET
  - Multiple Clock Sources and Operating Frequencies up to 32MHz
  - IDLE and SLEEP Modes
  - Low Power Fail-Safe Ring Oscillator ±10% Accuracy
  - Hibernation Timer with programmable wake-up from 0.5ms to 128 minutes
  - 8051-Driven 16550A UART
    - 16-Byte Send/Receive FIFOs
    - External Baud Clock Option
  - Power-Fail Status Register
- Battery Backed Resources
  - 32KHz clock generator
  - 1 Week Wakeup timer
- One 8584-Style SMBus Controller
  - 8051 Host Interface Logic Allows Master or Slave Operation
  - Controllers are Fully Operational on Standby Power
  - 2 Ports per Controller

- Two independent Hardware Driven PS/2 Ports
  - Fully functional on Main and/or Suspend Power
  - PS/2 edge Wake Capable
  - Wake on specific mouse protocol
  - Wake on specific keyboard protocol
- 82 General Purpose I/O Pins
  - 62 8051 Addressable I/O Pins
  - 7 8051 Addressable Out-only Pins
  - 2 8051 Addressable In-only Pins
  - 16 I/Os Mapped into 8051 SFR Space
  - 1 LPC/8051-Addressable I/O
  - 14 Maskable Hardware Wake-Event Capable
  - 67 Programmable Open-Drain/Push-Pull Outputs
  - 2 SMSC SentinelAlert! Direct Battery Management GPIO's
- Four Programmable Pulse-Width Modulator Outputs
  - Multiple clock Sources and Independent Clock Rates
  - 8 Bit Duty Cycle Granularity
- Three Fan Tachometer Inputs
- Three Programmable 16-bit Counter/Timers
- Direct Battery Management with SMSC SentinelAlert!
  - Analog to Digital Converter with
    - 8 channels, 8b/10b conversion
    - 20ms conversion time for 8 channels
  - Digital to Analog Converter with SMSC SentinelAlert!
    - 3 channels, 8b conversion
    - 1.5ms conversion time for 3 channels
  - 2-GPIO's with SMSC SentinelAlert!
  - 2-Single pin remote temperature sensor inputs
  - HW_PROTECT# output thermal event indication
- MCU Serial Debug Port
- Integrated Standby Power Reset Generator
- 144 Pin VTQFP Package; Green, Lead-Free Package also available

PRODUCT PREVIEW

ORDER NUMBER(S):

KBC1100L-PE FOR 144 PIN, VTQFP PACKAGE; KBC1100L-PU FOR 144 PIN VTQFP PACKAGE (GREEN, LEAD-FREE)

80 Arkay Drive
Hauppauge, NY 11788
(631) 435-6000
FAX (631) 273-3123

General Description

The KBC1100L is an integrated Keyboard/System Management Controller which incorporates a high-performance 8051 Micro-Controller, an LPC Bus/Firmware Hub Host Interface and a Super I/O. The KBC1100L is powered by two separate supply planes (VCC1, VCC0) to provide “instant on” and sophisticated system power management functions. The KBC1100L power control circuitry supports multiple low power-down modes.

The KBC1100L incorporates a Direct Battery Management (DBM) with SMSC SentinelAlert! accessible by the 8051. Together with external remote temperature sensor(s) can provide complete Analog Monitoring & Control System. The KBC1100L DBM includes an 8 channel ADC, a 3 channel DAC with SMSC SentinelAlert! and up to 2 SMSC SentinelAlert! GPIO's, two channel one-pin Temperature Sensor Communication Links, and a hardware protect output that requires no programming or 8051 intervention to operate.

The KBC1100L incorporates a Standby Power Reset Generator (RESGEN) which monitors the VCC1 power input and generates the internal VCC1 power on reset for the KBC1100L. The KBC1100L also outputs VCC1RST# which can be used to reset the Flash memory on the Shared Flash Interface (SFI).

A block diagram of the KBC1100L including the distribution of the supply planes is shown in Figure 1 on page 5.

Block Diagram

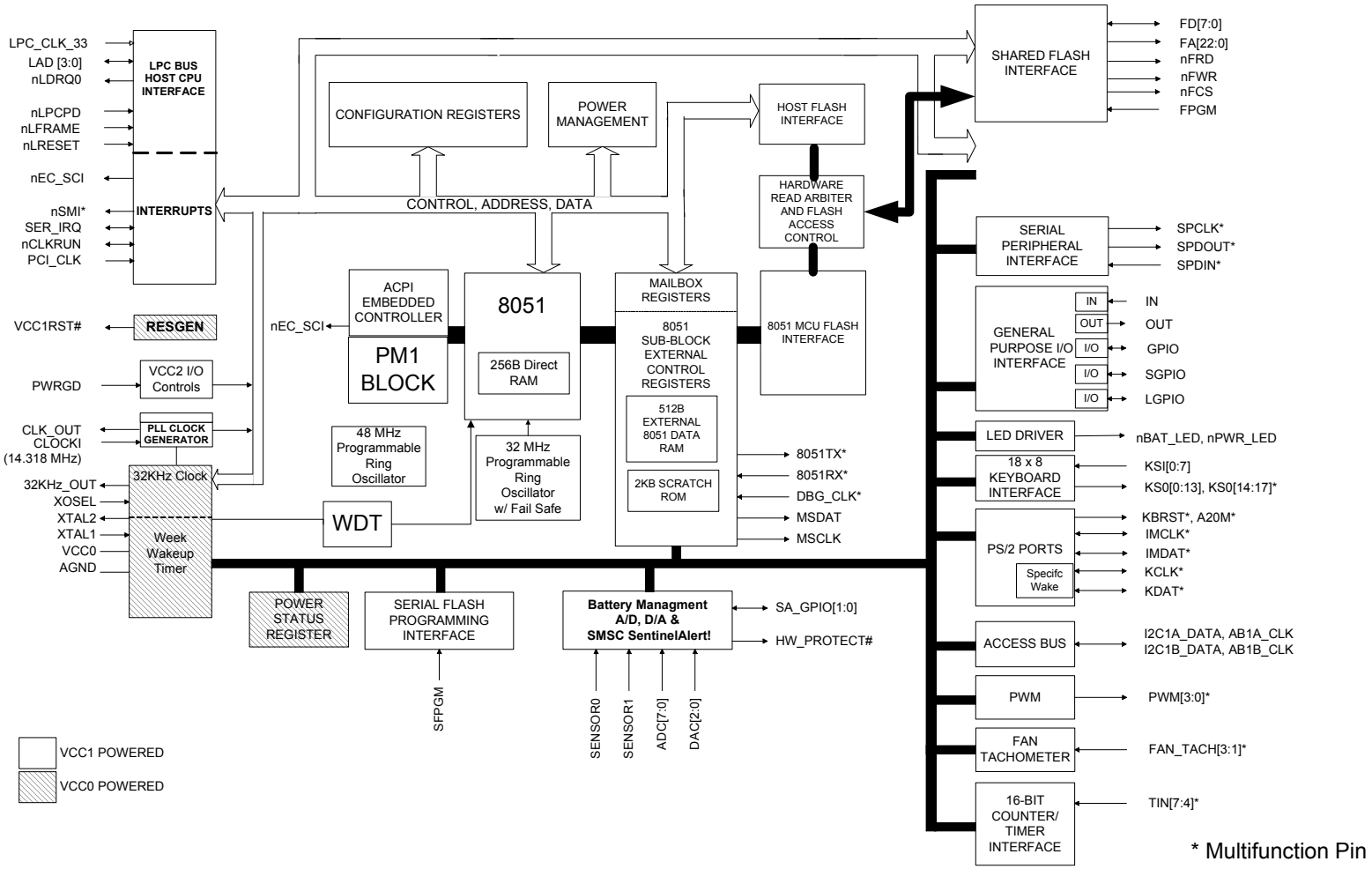


Figure 1 KBC1100L Block Diagram

Package Outline

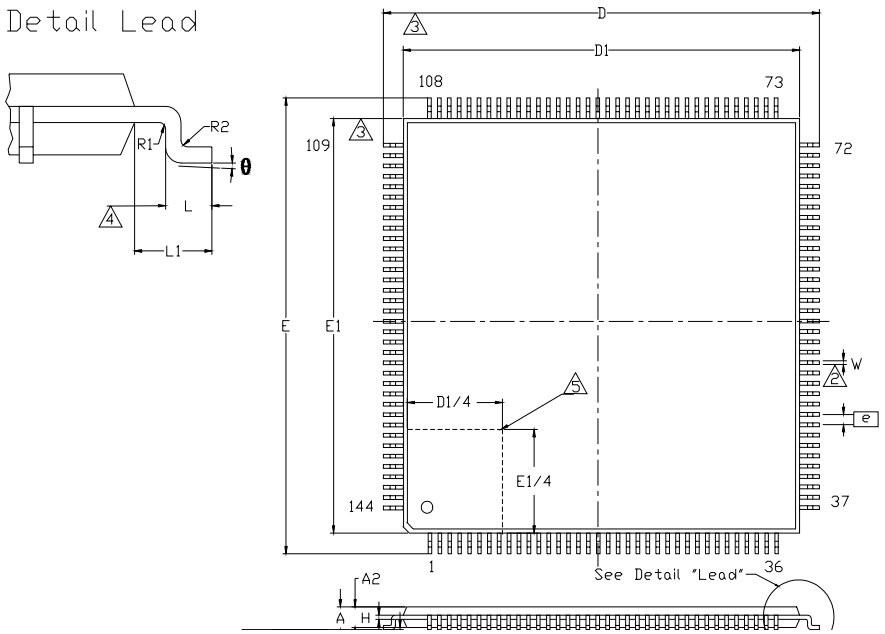


Figure 2 144 Pin VTQFP Package Outline, 20 x 20 x 1.0 Body 2mm Footprint

Table 1 144 Pin VTQFP Package Parameters

	MIN	NOMINAL	MAX	REMARK
A	~	~	1.20	Overall Package Height
A1	0.05	~	0.15	Standoff
A2	0.95	~	1.05	Body Thickness
D	21.80	~	22.20	X Span
D1	19.80	~	20.20	X Body Size
E	21.80	~	22.20	Y Span
E1	19.80	~	20.20	Y Body Size
H	0.09	~	0.20	Lead Frame Thickness
L	0.45	0.60	0.75	Lead Foot Length
L1	~	1.00	~	Lead Length
e		0.50 BSC.		Lead Pitch
q	0°	~	7°	Lead Foot Angle
W	0.13	0.18	0.23	Lead Width
R1	0.08	~	~	Lead Shoulder Radius
R2	0.08	~	0.20	Lead Foot Radius
ccc	~	~	0.08	Coplanarity

Notes:

1. Controlling Unit: millimeter.
2. Tolerance on the true position of the leads is ±0.04 mm maximum.
3. Package body dimensions D1 and E1 do not include the mold protrusion. Maximum mold protrusion is 0.25 mm.
4. Dimension for foot length L measured at the gauge plane 0.25 mm above the seating plane.
5. Details of pin 1 identifier are optional but must be located within the zone indicated.