# Dual-Socket PC Card and UltraMedia Controller

## FEATURES

- ***PC Card Standard* 8.0 compliant**
- ***PCI Bus Power Management Interface Specification* 1.1 compliant**
- ***Advanced Configuration and Power Interface Specification* 1.0 compliant**
- ***PCI Local Bus Specification* Revision 2.2 compliant**
- ***PC 98/99* compliant**
- **Has integrated voltage regulator to use 1.8-V core voltage**
- **Compliant with the *PCI Bus Interface Specification for PCI-to-CardBus Bridges***
- **Advanced filtering on card detect lines provides 90 microseconds of noise immunity.**
- **Programmable D3 status terminal**
- **1.8-V core logic and 3.3-V I/O cells with internal voltage regulator to generate 1.8-V core $V_{CC}$**
- **Universal PCI interfaces compatible with 3.3-V and 5-V PCI signaling environments**
- **Mix-and-match 5-V/3.3-V 16-bit PC Cards and 3.3-V CardBus cards**
- **Supports two PC Card or CardBus slots with hot insertion and removal**
- **Uses serial interface to TI TPS2226 and TI TPS2228 dual power switch**
- **Supports 132-MBps burst transfers to maximize data throughput on both the PCI bus and the CardBus bus**
- **Supports serialized IRQ with PCI interrupts**
- **13 programmable multifunction terminals**
- **Interrupt modes supported: serial ISA/serial PCI, serial ISA/parallel PCI, parallel PCI only**
- **Serial EEPROM interface for loading subsystem ID and subsystem vendor ID**
- **Supports external zoomed video**
- **Dedicated terminal for PCI CLKRUN**
- **Four general-purpose event registers**
- **Multifunction PCI device with separate configuration space for each socket**
- **Five PCI memory windows and two I/O windows available to each 16-bit PC Card socket**
- **Two I/O windows and two memory windows available to each CardBus socket**
- **ExCA-compatible registers are mapped in memory or I/O space**
- **Intel™ 82365SL–DF register compatible**
- **Supports ring indicate, suspend, and PCI clock run**
- **Advanced submicron, low-power CMOS technology**
- **Provides VGA/palette memory and I/O, and subtractive decoding options**
- **LED activity terminals**
- **Supports PCI bus lock (LOCK)**

## DESCRIPTION

The Texas Instruments PCI1620 is an integrated dual-socket PC Card controller, FlashMedia™ controller (SmartMedia™ Card, MultiMediaCard, SD Card, Memory Stick™ card) and Smart Card controller.

The PCI1620 UltraMedia™ controller is a three-function PCI device compliant with *PCI Local Bus Specification* 2.2. Functions 0 and 1 provide two independent PC Card socket controllers compliant with *PC Card Standard* 8.0. Function 2 is the interface to load the PCI1620 program RAM with firmware. The PCI1620 provides features that make it ideal for bridging between the PCI bus and PC Cards, and supports any combination of 16-bit, CardBus, and UltraMedia PC Cards in the two sockets, powered at 5 V, 3.3 V, or 1.8 V as required.

UltraMedia cards that comply with the latest PCMCIA standard provide for very low-cost flash media and Smart Card adapters, because the control logic is integrated into the PCI1620. The PCI1620 supports a passive 4-in-1 adapter, as well as active PC Card-style Flash media and Smart Card adapters.

No PCMCIA card or socket service software changes are required to move systems from an existing CardBus socket controller to the PCI1620. The FlashMedia UltraMedia applications use existing host ATA drivers, and Texas Instruments provides a qualified Smart Card driver for UltraMedia-based Smart Card adapters. The PCI1620 is register compatible with the Intel 82365SL–DF ExCA controller and implements the host interface defined in the *PC Card Standard*. The PCI1620 internal data path logic allows the host to access 8-, 16-, and 32-bit cards using full 32-bit PCI cycles for maximum performance. Independent buffering and the pipeline architecture provide a high performance level with sustained bursting. The PCI1620 can be programmed to accept posted writes to improve bus utilization.

Various implementation-specific functions and general-purpose inputs and outputs are provided through seven multifunction terminals. These terminals present a system with options for PCI LOCK, serial and parallel interrupts, PC Card activity indicator LEDs, and other platform-specific signals. ACPI-compliant general-purpose events may be programmed and controlled through the multifunction terminals, and an ACPI-compliant programming interface is included for the general-purpose inputs and outputs.

The PCI1620 is compliant with *PCI Bus Power Management Interface Specification* 1.1, and provides several low-power modes, which enable the host power system to further reduce power consumption. The PCI1620 also has a three-terminal serial interface compatible with both the TI TPS2226 and TPS2228 power switches.

**NOTE:**

This product is for high-volume PC applications only. For a complete datasheet or more information contact support@ti.com.

## PACKAGING INFORMATION

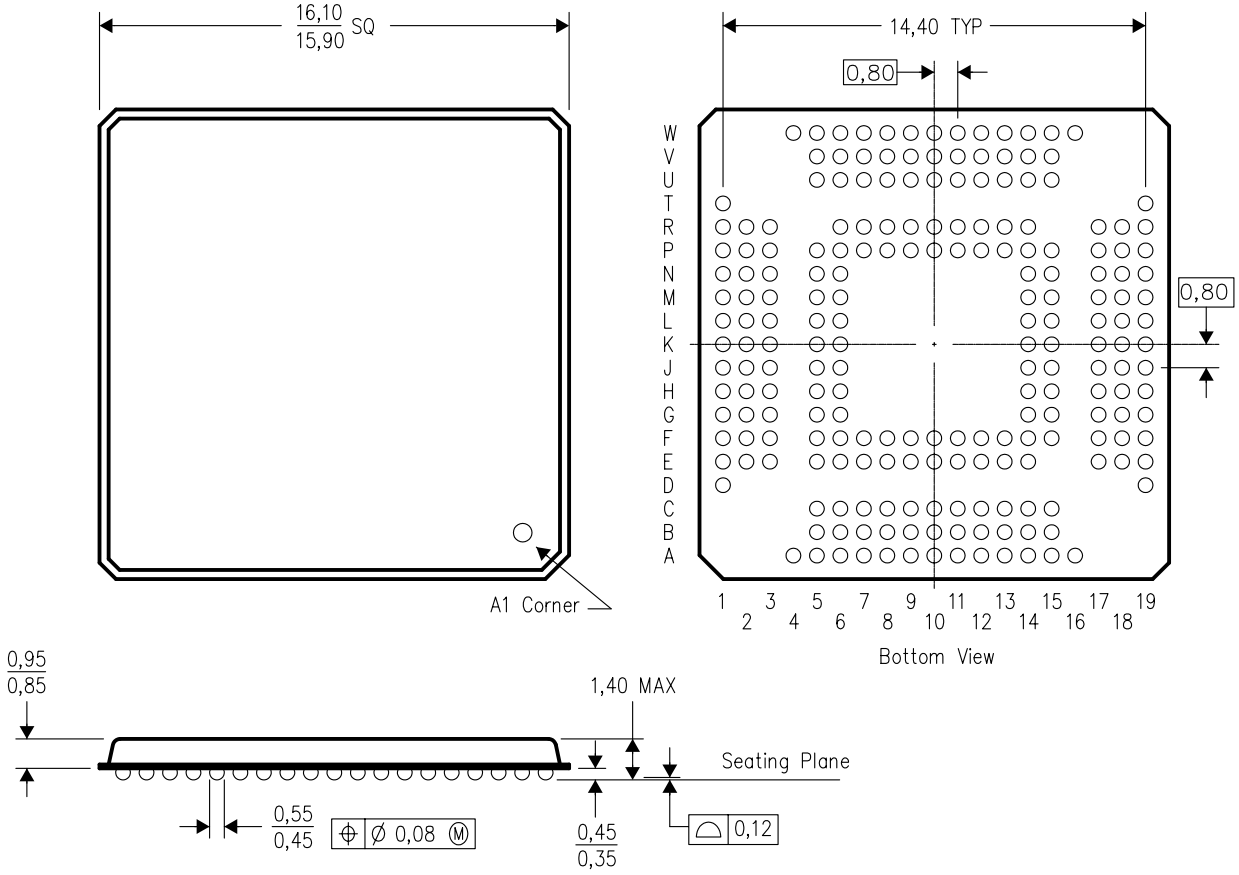
| Orderable Device | Status [1] | Package Type | Package Drawing | Pins | Package Qty | Eco Plan [2] | Lead/Ball Finish | MSL Peak Temp [3] |
|---|---|---|---|---|---|---|---|---|
| PCI1620GHK | OBSOLETE | BGA MICROSTAR | GHK | 209 | | TBD | Call TI | Call TI |
| PCI1620PDV | OBSOLETE | LQFP | PDV | 208 | | TBD | Call TI | Call TI |
| PCI1620ZHK | OBSOLETE | BGA MICROSTAR | ZHK | 209 | | TBD | Call TI | Call TI |

[1] The marketing status values are defined as follows:
**ACTIVE:** Product device recommended for new designs.
**LIFEBUY:** TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.
**NRND:** Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.
**PREVIEW:** Device has been announced but is not in production. Samples may or may not be available.
**OBSOLETE:** TI has discontinued the production of the device.

[2] Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check http://www.ti.com/productcontent for the latest availability information and additional product content details.
**TBD:** The Pb-Free/Green conversion plan has not been defined.
**Pb-Free (RoHS):** TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.
**Pb-Free (RoHS Exempt):** This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.
**Green (RoHS & no Sb/Br):** TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

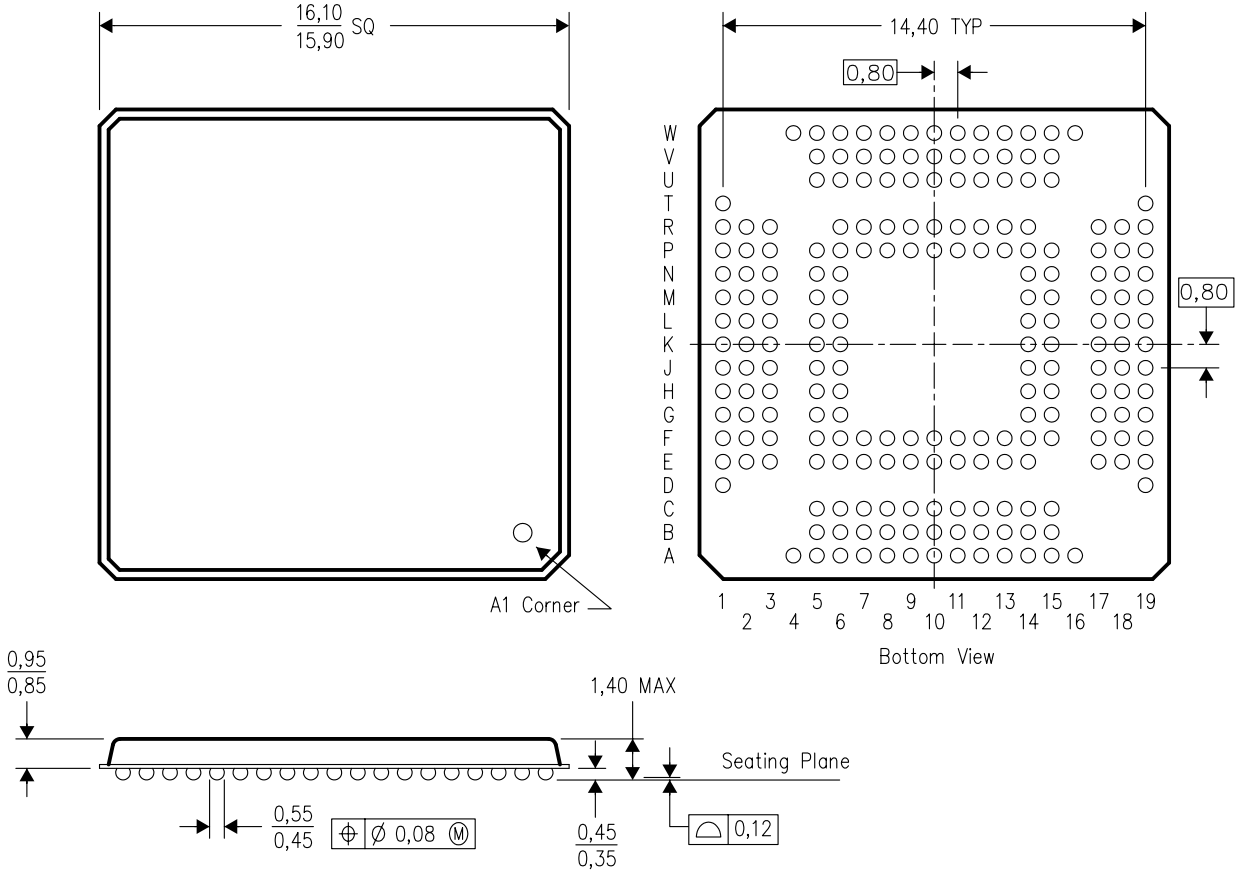
[3] MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

## ZHK (S–PBGA–N209) PLASTIC BALL GRID ARRAY




NOTES:
A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. This is a lead–free solder ball design.

## GHK (S–PBGA–N209) PLASTIC BALL GRID ARRAY




NOTES: A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.

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