

IT8888G

PCI-to-ISA Bridge Chip
(Code Name: Golden Gate)

Preliminary Specification V0.9 **(For D Version)**

ITE TECH. INC.

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Please note that the IT8888G V0.9 is applicable to the D version.*

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Additional copies of this manual or other ITE literature may be obtained from:

ITE Tech. Inc.	Tel:	886-2-29126889
Marketing Department	Fax:	886-2-2910-2551, 886-2-2910-2552
7F, No.233-1, Baociao Rd., Sindian City,		
Taipei County 23145, Taiwan, ROC		

If you have any marketing or sales questions, please contact:
P.Y. Chang, at ITE Taiwan:
E-mail: p.y.chang@ite.com.tw, Tel: 886-2-29126889 X6052, Fax: 886-2-29102551

You may also find the local sales representative nearest you on the ITE web site.

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Or e-mail itesupport@ite.com.tw for more product information/services

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1. Features

■ PCI Interface

- PCI Specification V. 2.1 compliant
- Supports 32-bit PCI bus & up to 33 MHz PCI bus frequency
- Supports PERR# & SERR# Error Reporting
- Supports Delayed Transaction
- Optional CLKRUN# interface support

■ Programmable PCI Address Decoders

- Supports either programmable positive decode or full subtractive decode of PCI cycles
- Provides 6 positively decoded I/O blocks & 4 positively decoded memory blocks.
- Optional support ROMCS# fast positive decoder

■ PC/PCI DMA Controller

- Comply with Intel Mobile PC/PCI DMA R2.2
- Supports PPDREQ# and PPDGNT#
- Provides software transparent capability

■ Distributed DMA Controller

- Comply with Distributed DMA R6.0
- Supports 7 DDMA channels
- Optional DDMA-Concurrent PCI bus

■ ISA Interface

- Supports full ISA compatible functions
- Supports ISA at ¼ of PCI frequency
- ISA Bus Master supported
- Supports 4 ISA slots

■ SM Bus

- Comply with System Management Bus Specification R. 1.0
- Supports single master mode
- Interface to Serial E²PROM

■ Serial IRQ

- Comply with Serialized IRQ Support for PCI system R6.0
- Supports both continuous and quite modes
- Auto detect Start Frame width and slot number
- Encodes all ISA IRQs and IOCHCK#

■ Optional FLASH ROM Interface

- Supports up to 1 Mbytes ROM size
- Positively fast decodes F-segments by power-on strapping

■ Versatile power-on strapping options

■ Supports NOGO function

■ Single 33 MHz Clock Input

■ +3.3V PCI I/F with +5V tolerant I/O buffers

■ +5V ISA I/F and core Power Supply

■ Package: 160 TFBGA

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2. General Description

The IT8888G is a PCI to ISA bridge single function device. The IT8888G serves as a bridge between the PCI bus and ISA bus. The IT8888G's 32-bit PCI bus interface is compliant with PCI Specification V2.1 and supports both PCI Bus Master & Slave. The PCI interface supports both programmable positive and full subtractive decoding schemes.

The IT8888G also integrates two enhanced DMA Slave controllers for achieving PCI DMA cycles: PC/PCI DMA Slave Controller & Distributed DMA Slave Controllers.

The IT8888G also implements the optional fast positive decode of F, E, D, C memory segments. This special feature can provide a direct connection to an FLASH boot ROM.

The NOGO function, which is also implemented in the IT8888G for enabling or disabling subtractive decode of PCI interface, could be a software controlled output pin from other host controlled devices. The Serial IRQ is also implemented in the device for sending and receiving ISA IRQs & IOCHCK#. The device includes an ISA interface which supports full ISA compatible functions.

The IT8888G is available in 160-pin TFBGA package.

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3. Block Diagram

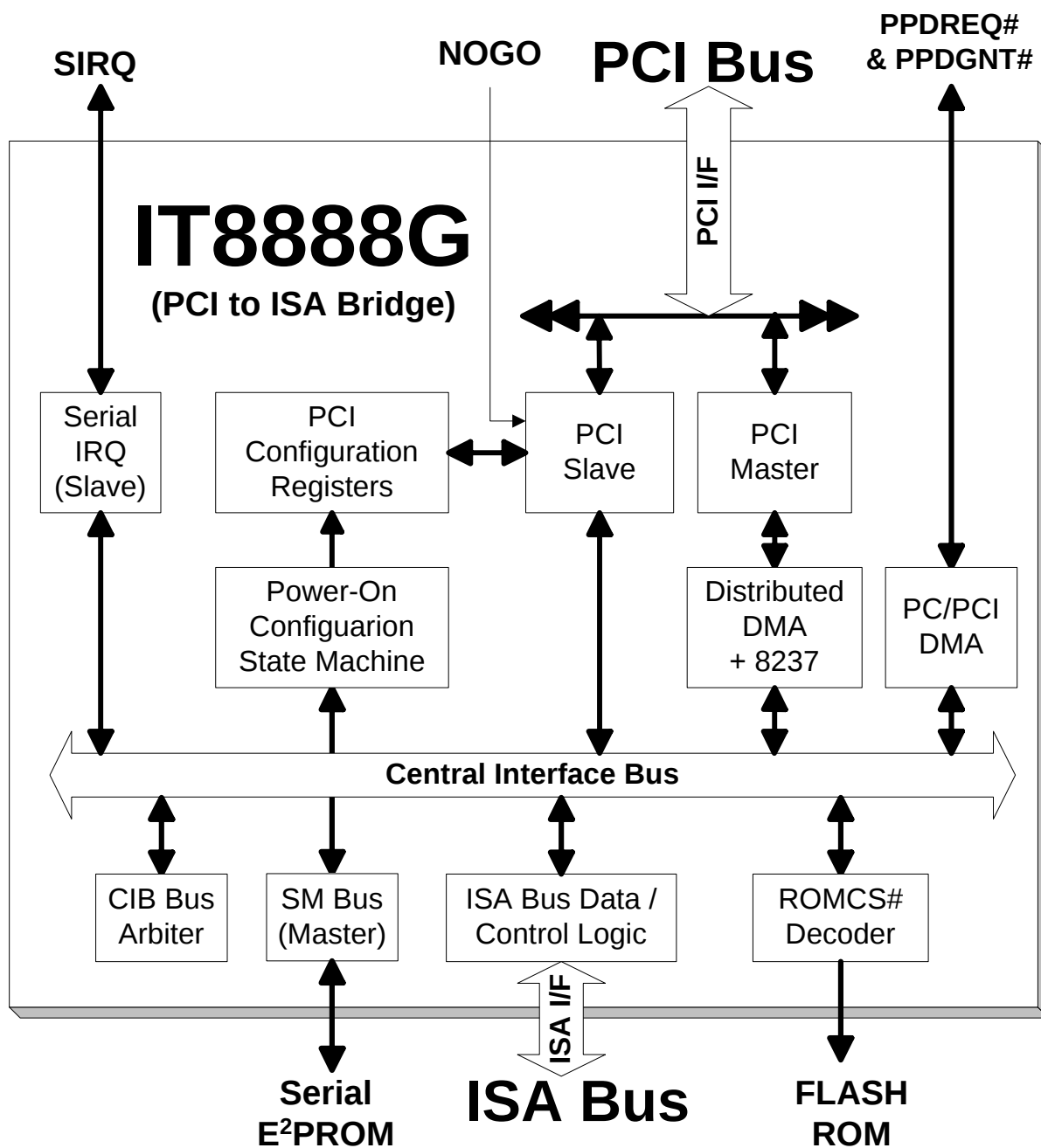


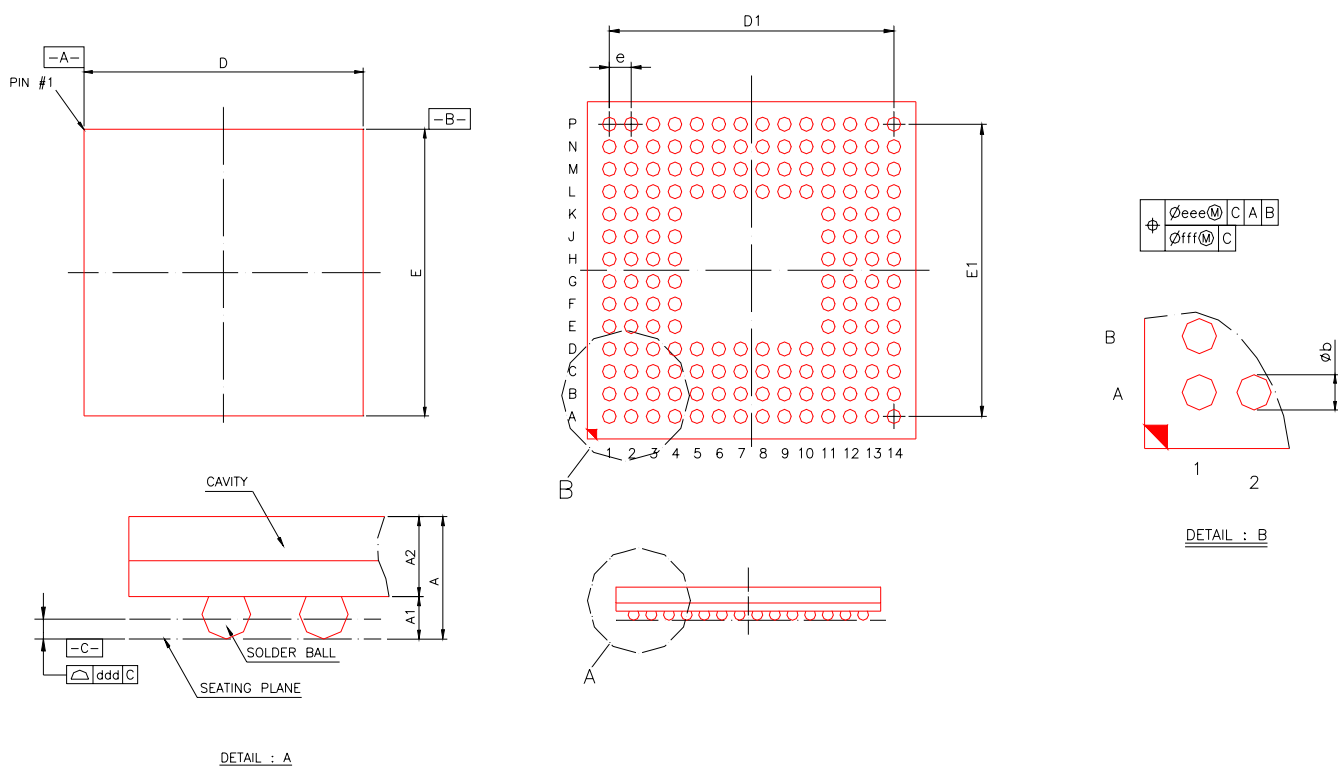
Figure 3-1. IC Block Diagram

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4. Package Information

TFBGA 160(12*12) Outline Dimensions

unit: inches/mm



Symbol	Dimensions in mm			Dimensions in inches		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	--	--	1.40	--	--	0.055
A ₁	0.25	0.30	0.35	0.010	0.012	0.014
A ₂	0.80	0.89	0.98	0.031	0.035	0.039
D	11.90	12.00	12.10	0.469	0.472	0.476
E	11.90	12.00	12.10	0.469	0.472	0.476
D1	10.40 BSC			0.409 BSC		
E1	10.40 BSC			0.409 BSC		
e	0.80 BSC			0.031 BSC		
b	0.35	0.40	0.45	0.014	0.016	0.018
ddd	0.2			0.008		
eee	0.15			0.006		
fff	0.08			0.003		
MD/ME	14/14			14/14		

NOTE:

1. CONTROLLING DIMENSION: MILLIMETER.
2. REFERENCE DOCUMENT: JEDEC MO-205
3. THE PATTERN OF PIN 1 FIDUCIAL IS FOR REFERENCE ONLY.

DI-TFBGA160(12*12)v0

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5. Ordering Information

Part No.	Package
IT8888G	160 TFBGA

ITE also provides lead-free component. Please mark " -L " at the end of the Part No. when the parts ordered are lead-free.

ITE TECH. INC. TERMS AND CONDITIONS OF SALE (Rev: 2005)

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- (a) Delivery will be made Free Carrier (Incoterms), Seller's warehouse, Science-Based Industrial Park, Hsinchu, Taiwan.
- (b) Title to the goods and the entire risk will pass to Buyer upon delivery to carrier.
- (c) Shipments are subject to availability. Seller shall make every reasonable effort to meet the date(s) quoted or acknowledged, and if Seller makes such effort, Seller will not be liable for any delays.

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- (f) EXCEPT AS PROVIDED ABOVE, SELLER MAKES NO WARRANTIES OR CONDITIONS, EXPRESS, IMPLIED, OR STATUTORY; AND SELLER EXPRESSLY EXCLUDES AND DISCLAIMS ANY WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE OR APPLICATION.

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- (e) No action against Seller, whether for breach, indemnification, contribution or otherwise, shall be commenced more than one year after the cause of action has accrued, or more than one year after either the Buyer, user or other person knew or with reasonable diligence should have known of the matter or of any claim of dissatisfaction or defect involved; and no such claim may be brought unless Seller has first been given commercially reasonable notice, a full written explanation of all pertinent details, and a good faith opportunity to resolve the matter.
- (f) BUYER EXPRESSLY AGREES TO THE LIMITATIONS OF THIS PARAGRAPH 5 AND TO THEIR REASONABLENESS.

6. SUBSTITUTIONS AND MODIFICATIONS

Seller may at any time make substitutions for product ordered which do not materially and adversely affect overall performance with the then current specifications in the typical and intended use. Seller reserves the right to halt deliveries and shipments and alter specifications and prices without notice. Buyer shall verify that the literature and information is current before purchasing.

7. CANCELLATION

The purchase contract may not be canceled by Buyer except with written consent by Seller and Buyer's payment of reasonable cancellation charges (including but not be limited to expenses already incurred for labor and material, overhead, commitments made by Seller, and a reasonable profit).

8. INDEMNIFICATION

Seller will, at its own expense, assist Buyer with technical support and information in connection with any claim that any parts as shipped by Seller under the purchase order infringe any valid and enforceable copyright, or trademark, provided however, that Buyer (i) gives immediate written notice to Seller, (ii) permits Seller to participate and to defend if Seller requests to do so, and (iii) gives Seller all needed information, assistance and authority. However, Seller will not be responsible for infringements resulting from anything not entirely manufactured by Seller, or from any combination with products, equipment, or materials not furnished by Seller. Seller will have no liability with respect to intellectual property matters arising out of products made to Buyer's specifications, code, or designs. Except as expressly stated in this Paragraph 8 or in another writing signed by an authorized officer, Seller makes no representations and/or warranties with respect to intellectual and/or industrial property and/or with respect to claims of infringement. Except as to claims Seller agrees in writing to defend, BUYER WILL INDEMNIFY, DEFEND AND HOLD HARMLESS SELLER FROM ALL CLAIMS, COSTS, LOSSES AND DAMAGES (INCLUDING ATTORNEYS FEES) AGAINST AND/OR ARISING OUT OF GOODS SOLD AND/OR SHIPPED HEREUNDER.

9. NO CONFIDENTIAL INFORMATION

Seller shall have no obligation to hold any information in confidence except as provided in a separate non-disclosure agreement signed by both parties.

10. ENTIRE AGREEMENT

- (a) These terms and conditions are the entire agreement and the only representations and understandings between Seller and Buyer, and no addition, deletion or modification shall be binding on Seller unless expressly agreed to in writing and signed by an officer of Seller.
- (b) Buyer is not relying upon any warranty or representation except for those specifically stated here.

11. APPLICABLE LAW

The contract and all performance and disputes arising out of or relating to goods involved will be governed by the laws of R.O.C. (Taiwan, Republic of China), without reference to the U.N. Convention on Contracts for the International Sale of Goods or to conflict of laws principles. Buyer agrees at its sole expense to comply with all applicable laws in connection with the purchase, use or sale of the goods provided hereunder and to indemnify Seller from any failure by Buyer to so comply. Without limiting the foregoing, Buyer certifies that no technical data or direct products thereof will be made available or re-exported, directly or indirectly, to any country to which such export or access is prohibited or restricted under R.O.C. laws or U.S. laws or regulations, unless prior authorization is obtained from the appropriate officials and agencies of the government as required under R.O.C. or U.S. laws or regulations.

12. JURISDICTION AND VENUE

The courts located in Hsinchu, Taiwan, Republic of China, will have the sole and exclusive jurisdiction and venue over any dispute arising out of or relating to the contract or any sale of goods hereunder. Buyer hereby consents to the jurisdiction of such courts.

13. ATTORNEYS' FEES

Reasonable attorneys' fees and costs will be awarded to the prevailing party in the event of litigation involving and/or relating to the enforcement or interpretation of the contract and/or any goods sold under it.