

Product Brief
May 1998

microelectronics group

Lucent Technologies
Bell Labs Innovations



Ambassador™ T8102 **H.100/H.110 Interface and Time-Slot Interchanger**

Features

- Complete solution for interfacing board-level circuitry to the H.100/H.110 telephony bus
- H.100/H.110 compliant interface; all mandatory signals
- Includes 2 CT_NETREF pins
- Programmable connections to any of the 4096 time slots on the H.100/H.110 bus
- Up to 16 local serial inputs and 16 local serial outputs, programmable for 2.048 Mbits/s, 4.096 Mbits/s, and 8.192 Mbits/s operation per CHI specifications
- Programmable switching between local time slots and H.100/H.110 bus, up to 512 connections
- Choice of frame integrity or minimum latency switching on a per-time-slot basis:
 - Frame integrity to ensure proper switching of wideband data
 - Minimum latency switching to reduce delay in voice channels
- On-chip phase-locked loop (PLL) for H.100/H.110, *MVIP*^{*}, or *Dialogic*'s[†] SC-bus clock operation in master or slave clock modes
- Serial TDM bus rate and format conversion between most standard buses
- Optional 8-bit parallel input and/or 8-bit parallel output for local TDM interfaces
- High-performance microprocessor interface:
 - Provides access to device configuration registers and to time-slot data
 - Supports both *Motorola*[‡] nonmultiplexed and *Intel*[§] multiplexed/nonmultiplexed modes
- Subrate switching of nibbles, dibits, or bits
- Programmable GPIO
- Local-to-local switching through the H-bus content addressable memories (CAMs)
- Two independently programmable groups of up to 12 framing signals each
- 3.3 V local I/O with 5 V tolerant inputs and TTL-compatible outputs

- Boundary-scan testing support
- 208-pin, plastic SQFP
- 217-pin BGA package

Applications

- Computer-telephony systems
- Enhanced service platforms
- WAN access devices
- PBXs

Description

The *Ambassador* T8102 is an H.100/H.110-compliant device that provides a complete interface between the H.100/H.110 bus and a wide variety of telephony interface components, processors, and other circuits. The bus interface provides all signals needed for the H.100/H.110 bus, the H-*MVIP* and *MVIP*-90 buses, or the SC-bus. Local interfaces include sixteen serial inputs and sixteen serial outputs based on the Lucent concentration highway interface (CHI). One built-in time-slot interchanger is included. It supports up to 512 programmable connections between any time slot on the H.100/H.110 bus and any time slot in the local switching domain. The *Ambassador* T8102 is configured via a microprocessor interface. This interface can also read and write time-slot and device data.

* *MVIP* is a trademark of Natural MicroSystems Corporation.

† *Dialogic* is a registered trademark of Dialogic Corporation.

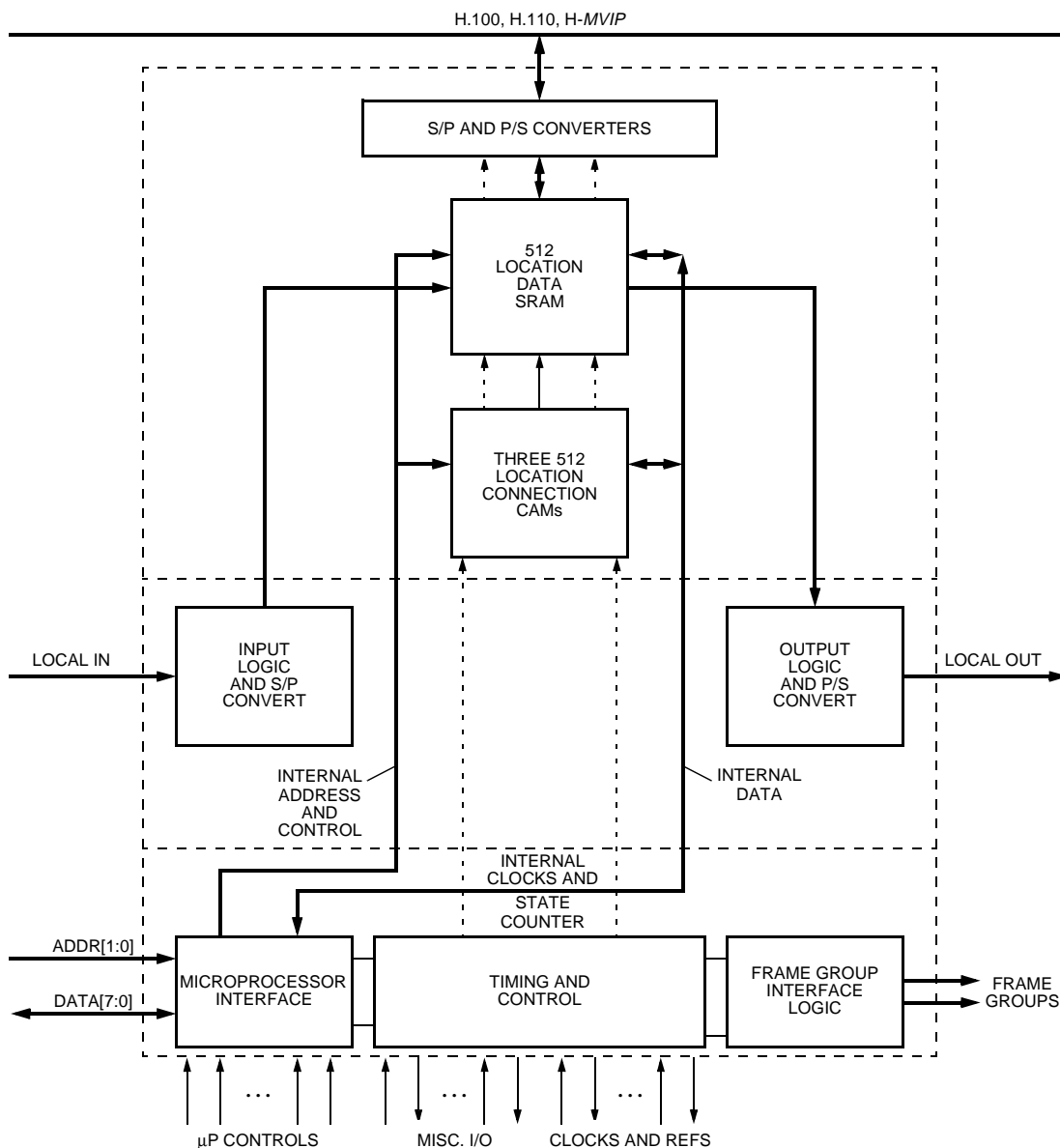
‡ *Motorola* is a registered trademark of Motorola, Inc.

§ *Intel* is a registered trademark of Intel Corporation.



Description (continued)

Onboard clock circuitry, including a digital phase-locked loop, supports all H.100/H.110 clock modes including *MVIP* and SC-bus compatibility clocks. The local CHI interfaces support PCM rates of 2.048 Mbits/s, 4.096 Mbits/s, and 8.192 Mbits/s. The *Ambassador* T8102 has internal circuitry to support either minimum latency or multi-time-slot frame integrity. Frame integrity is a requisite feature for applications that switch wideband data (ISDN H-channels). Minimum latency is advantageous in voice applications.



5-6101(F)b

Figure 1. Block Diagram of the Ambassador

Application Overview

The integration of computers and telecommunications has enabled a wide range of new communications applications and has fueled an enormous growth in communications markets. A key element in the development of computer-based communications equipment has been the addition of an auxiliary telecom bus to existing computer systems. Most manufacturers of high-capacity, computer-based telecommunications equipment have incorporated some such telecom bus in their systems. Typically, these buses and bus interfaces are designed to transport and switch Nx64 kbits/s low-latency telecom traffic between boards within the computer, independent of the computer's I/O and memory buses. At least a half dozen of these PC-based telecom buses emerged in the early 1990s for use within equipment based on ISA/EISA and MCA computers.

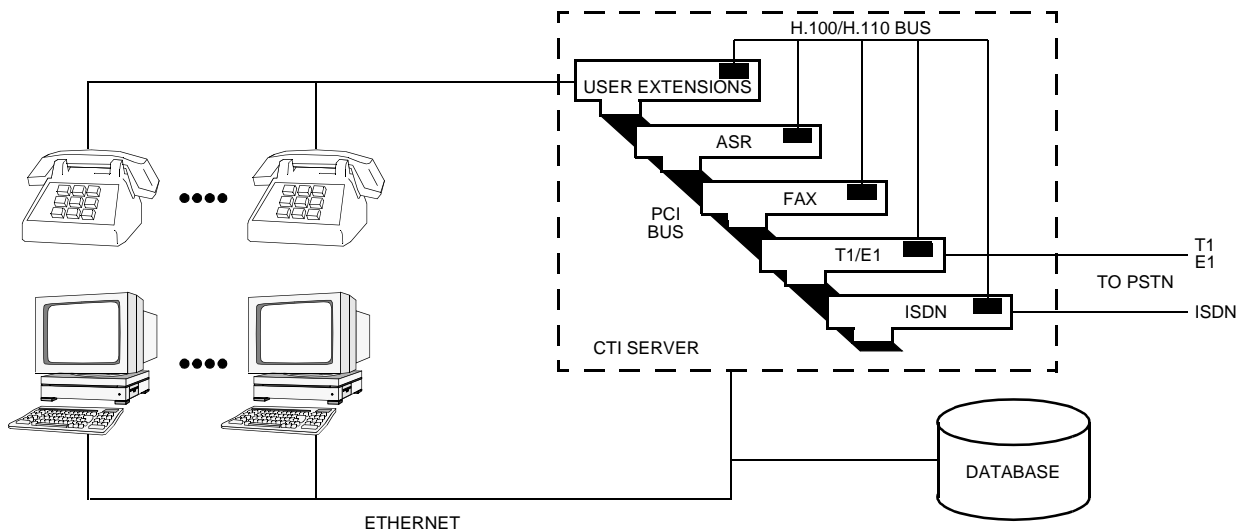
With the advent of the H.100/H.110 bus specification by the Enterprise Computer Telephony Forum, the computer-telephony industry has agreed on a single tele-

com bus for use with PCI and compact PCI computers. H.100/H.110 facilitates interoperation of components, thus providing maximum flexibility to equipment manufacturers, value-added resellers, system integrators, and others building computer-based telecommunications applications.

Subrate switching is the ability to switch part(s) of one byte from one stream/time slot to another stream/time slot. The parts are the following:

- Nibbles (4 bits)—representing a 32 kbits/s subrate
- Dibits (2 bits)—representing a 16 kbits/s subrate
- Bits—representing an 8 kbits/s subrate

H.100/H.110 data transfers are always bytes. If subrate switching is used, the T8100A constructs a byte consisting of the subrate samples. The constructed byte may contain any combination of nibbles, dibits, or bits. In addition, individual data bits can be placed within a byte along with don't care bits.



5-6099F

Figure 2. CTI Call Center Application

T8102 Selection Guide

Features	T8100	T8100A	T8102	T8105
Subrate switching	—	√	√	√
Local-to-local connections	1,024	1,024	—	1,024
Local-to-H.100 connections	256	256	512	512
CT_NETREFs	1	2	2	2

For additional information, contact your Microelectronics Group Account Manager or the following:

INTERNET: <http://www.lucent.com/micro>
E-MAIL: docmaster@micro.lucent.com
N. AMERICA: Microelectronics Group, Lucent Technologies Inc., 555 Union Boulevard, Room 30L-15P-BA, Allentown, PA 18103
1-800-372-2447, FAX 610-712-4106 (In CANADA: **1-800-553-2448**, FAX 610-712-4106)
ASIA PACIFIC: Microelectronics Group, Lucent Technologies Singapore Pte. Ltd., 77 Science Park Drive, #03-18 Cintech III, Singapore 118256
Tel. (65) 778 8833, FAX (65) 777 7495
CHINA: Microelectronics Group, Lucent Technologies (China) Co., Ltd., A-F2, 23/F, Zao Fong Universe Building, 1800 Zhong Shan Xi Road, Shanghai 200233 P. R. China **Tel. (86) 21 6440 0468, ext. 316**, FAX (86) 21 6440 0652
JAPAN: Microelectronics Group, Lucent Technologies Japan Ltd., 7-18, Higashi-Gotanda 2-chome, Shinagawa-ku, Tokyo 141, Japan
Tel. (81) 3 5421 1600, FAX (81) 3 5421 1700
EUROPE: Data Requests: MICROELECTRONICS GROUP DATALINE: **Tel. (44) 1189 324 299**, FAX (44) 1189 328 148
Technical Inquiries: GERMANY: **(49) 89 95086 0** (Munich), UNITED KINGDOM: **(44) 1344 865 900** (Bracknell),
FRANCE: **(33) 1 48 83 68 00** (Paris), SWEDEN: **(46) 8 600 7070** (Stockholm), FINLAND: **(358) 9 4354 2800** (Helsinki),
ITALY: **(39) 2 6608131** (Milan), SPAIN: **(34) 1 807 1441** (Madrid)

Lucent Technologies Inc. reserves the right to make changes to the product(s) or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information. *Ambassador* is a trademark of Lucent Technologies Inc.

