Product Brief
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microelectronics group

Lucent Technologies
Bell Labs Innovations

Ambassador™ T8100
H.100/H.110 Interface and Time-Slot Interchanger

Introduction

Increasingly, enhanced telephony services are provided by equipment based on mass-market computer-telephony architectures. The H.100/H.110 time-division multiplexed (TDM) bus has emerged as the industry standard used in these systems. The *Ambassador* T8100 is a single device that provides a complete interface for H.100/H.110-based systems.

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
- 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, up to 1024 connections
- Programmable switching between local time slots and H.100/H.110 bus, up to 256 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
- 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* T8100 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). Two built-in time-slot interchangers are included. The first provides a local switching domain with up to 1024 programmable connections between time slots on the local CHI inputs and outputs. The second supports up to 256 programmable connections between any time slot on the H.100/H.110 bus and any time slot in the local switching domain. The *Ambassador* T8100 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* T8100 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.

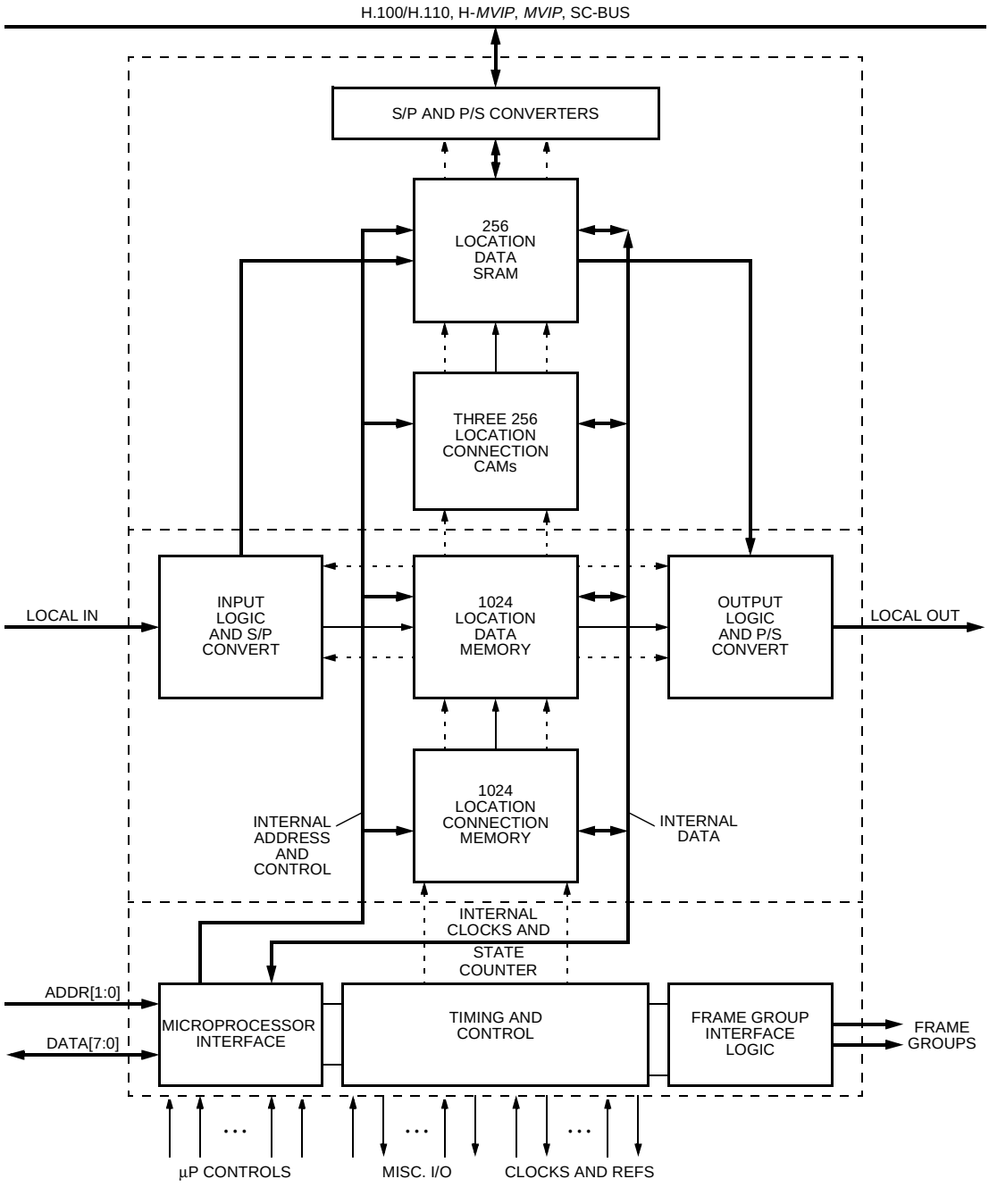

Figure 1. Block Diagram of the *Ambassador*

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 telecom 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.

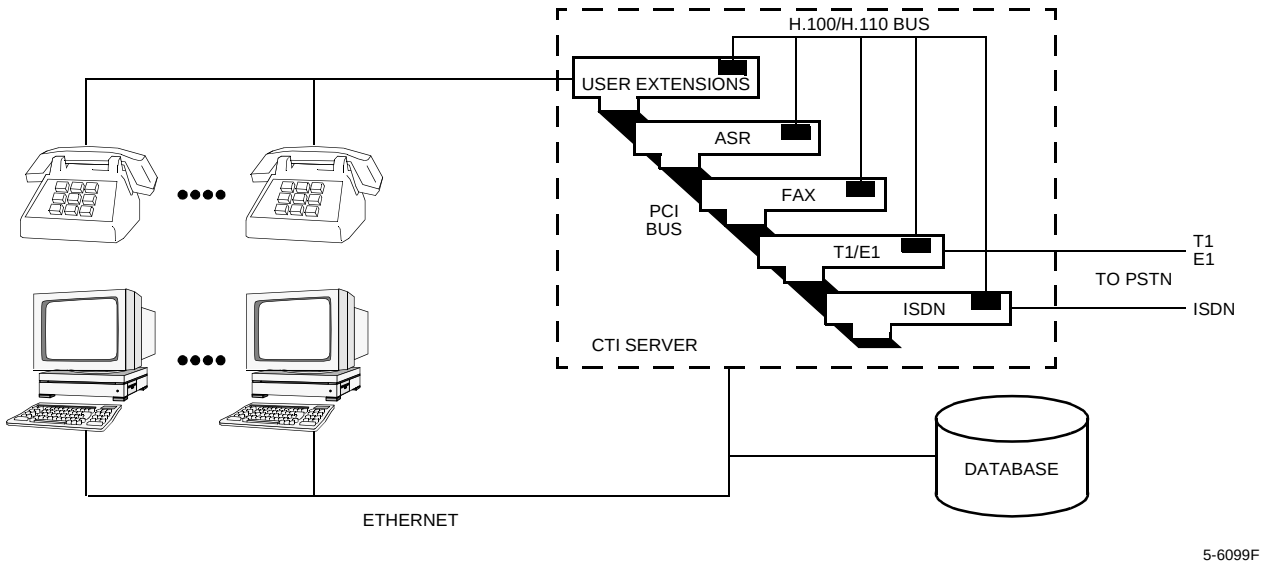

Figure 2. CTI Call Center Application

T8100 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

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