**intel**

**Intel in
Communications**

DM/F240-1T1-PCIU and DM/F300-1E1-PCIU Fax Boards

The high-density, high-capacity, single-hardware-slot DM/F240-1T1-PCIU and DM/F300-1E1-PCIU fax boards are useful for large-scale deployments of fax-enabled applications. They allow users to take advantage of a span of either 24 or 30 ports of feature-rich fax capabilities, plus an integrated network interface, on a single board.
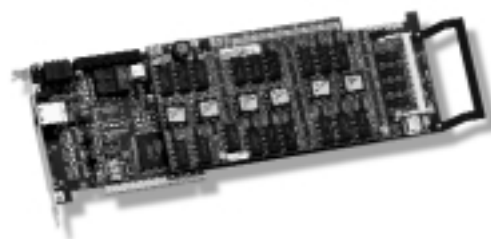
Media supported	Fax
Form factor	Universal PCI
Network connectivity	On-board T-1 (DM/F240-1T1-PCIU) On-board E-1 (DM/F300-1E1-PCIU)
Channels per board	24 (DM/F240-1T1-PCIU) 30 (DM/F300-1E1-PCIU)
Maximum boards per system	8 (DM/F240-1T1-PCIU) = 196 channels 8 (DM/F300-1E1-PCIU) = 240 channels
Supported operating systems	Windows NT* 4.0 Windows* 2000 Windows XP* RedHat* Linux*
API	R4 (fax) Global Call (call control)

Features and Benefits

High density — The DM/F240-1T1-PCIU and DM/F300-1E1-PCIU boards provide 24 or 30 send and receive intelligent fax ports plus an on-board network interface, all in a single slot. By providing high density and eliminating the need for a separate network interface board, they can help reduce overall system size and cost.

Short transmission time — Fast 14.4 KB/s fax transmission, both sending and receiving, concurrently on all channels, helps shorten transmission time and save on phone costs.

Worldwide compatibility — Compatibility with T.30 protocol and modifications helps ensure high compatibility with fax devices worldwide. Support for T-1 and E-1 ISDN and T-1 and E-1 CAS protocols also provides freedom to build solutions for the global marketplace.

Fast throughput — On-board and on-the-fly MH, MR, and MMR compression means fast throughput, maximizing the number of pages a user can fax per minute and minimizing the amount of time spent on the phone.

Operating system support — These high-density fax boards support the Microsoft Windows NT, Windows 2000, Windows XP, and RedHat Linux operating systems.

Upgradable — These digital signal processor (DSP)-based boards provide maximum flexibility and future firmware upgradability.
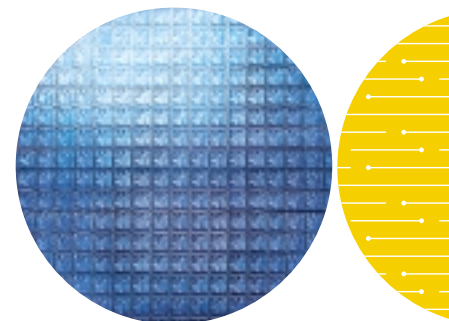
The increased resource density on the DM/F240-1T1-PCIU and DM/F300-1E1-PCIU fax boards lowers per-port costs, since it is possible to deploy fewer boards per chassis and, ultimately, fewer and smaller chassis overall. Up to eight boards (up to 196 or 240 ports of fax) can be combined in a single chassis.

Support under the Intel® Dialogic® Global Call API, a unified call control programming interface and protocol engine, lets the same application work on multiple signaling systems worldwide (i.e., ISDN PRI, T-1 robbed-bit, R2/MF, pulsed, and more) and offers the flexibility to scale systems to meet the growing needs of your business.

Applications

Use the DM/F240-1T1-PCIU and DM/F300-1E1-PCIU boards to build sophisticated, converged communications systems to which can be added capabilities including fax-on-demand, fax broadcast, unified messaging, and call control services.

For maximum flexibility and scalability, the DM/F240-1T1-PCIU and DM/F300-1E1-PCIU boards share a common hardware and firmware architecture with other Intel® Dialogic® and Intel® NetStructure™ CT Bus boards. Features can be added and systems can grow without sacrificing investments in hardware and application code. With only minimum modifications, applications can be easily ported to lower- or higher-line-density platforms. The DM/F240-1T1-PCIU and DM/F300-1E1-PCIU boards install in any Universal PCI-based personal computer or server (PCI bus or mixed PCI/ISA) and compatible computers (PC platforms based on Intel® Pentium® processors). The DM/F240-1T1-PCIU and DM/F300-1E1-PCIU boards provide everything required for building high-density fax solutions scalable from one to eight PRI trunks. The maximum number of lines that can be supported depends on the application, the amount of disk I/O required, the host computer CPU, and the power supply.

Key applications for theses boards include:
- **Fax broadcast** — A fax broadcast system, which sends out numerous fax messages such as press releases in one easy operation, is an efficient way to save money on communications costs.

- **Unified messaging** — With high densities that allow for maximum lines in a minimal footprint, these fax boards are the ideal choice for adding fax capabilities to open, modular unified messaging solutions.

- **Fax server** — Using these high-density fax boards in a fax server application makes it simple and affordable to add fax to the communications infrastructure.

- **Fax on demand** — It's easy to reach out to customers by giving them easy telephone access to faxed information with no operator involvement. This is an ideal way to stretch a company's communications budget.

Configurations

The DM/F240-1T1-PCIU and DM/F300-1E1-PCIU high-density fax boards let system developers seamlessly add fax to existing CT applications.
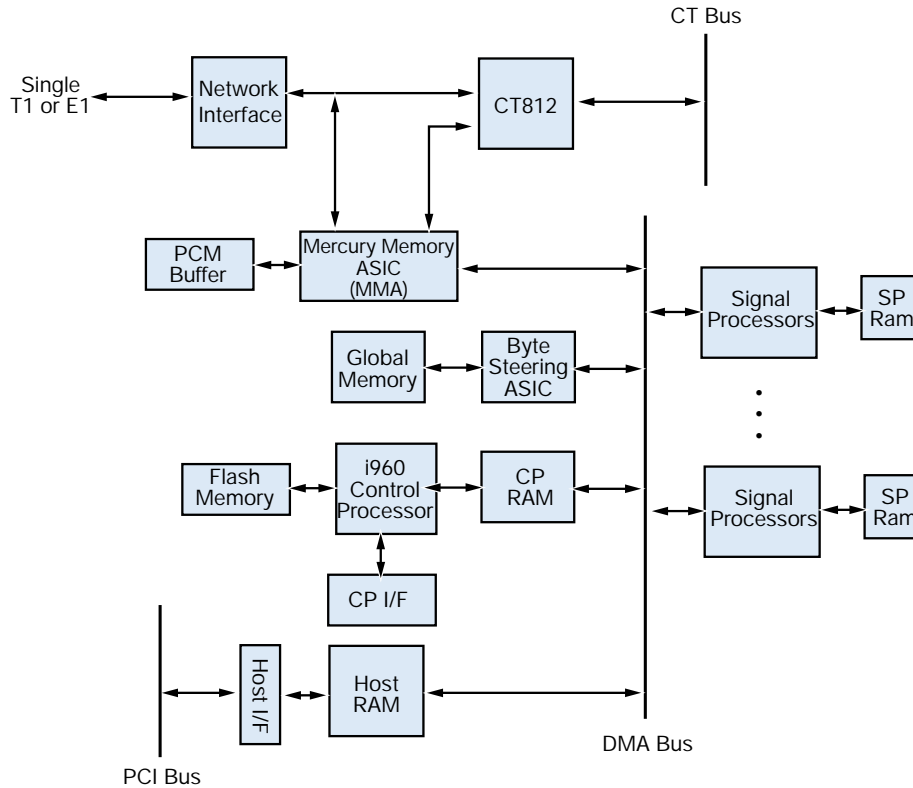
The DM/F240-1T1-PCIU and DM/F300-1E1-PCIU boards can operate within a mixed chassis containing PCI products from Intel. Their forward-looking design incorporates the H.100 connector to simplify connection to next-generation CT Bus products. The DM/F240-1T1-PCIU and DM/F300-1E1-PCIU boards can also connect to existing SCbus products with an optional CT Bus/SCbus adapter. The adapter provides both SCbus and H.100 physical connectors required to link the DM/F240-1T1-PCIU and DM/F300-1E1-PCIU boards to current SCbus products.

Software Support

The DM/F240-1T1-PCIU and DM/F300-1E1-PCIU fax boards support the Microsoft Windows NT 4.0, Windows 2000, Windows XP, and RedHat Linux operating systems.

The DMF2401T1PCIU and DMF3001E1PCIU fax boards use the R4 API for fax, which helps to ensure a clear migration path and seamless integration into existing applications, protecting the developer's investment in code.

Support under Intel® Dialogic® Global Call API, a unified call control programming interface and protocol engine, lets the same application work on multiple signaling systems worldwide (i.e., ISDN PRI, T-1 robbed-bit, R2/MF, pulsed, and more) and offers the flexibility to scale systems to meet the growing needs of your business.

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                                                    CT Bus

  Single          ┌──────────┐         ┌──────────┐
  T1 or E1 ◄──────┤ Network  │◄───────►│  CT812   │◄──────►
           ──────►│ Interface│         │          │
                  └──────────┘         └──────────┘

         ┌──────┐   ┌──────────────┐              ┌──────────┐   ┌──────┐
         │ PCM  │◄─►│Mercury Memory│◄────────────►│  Signal  │◄─►│  SP  │
         │Buffer│   │    ASIC      │              │Processors│   │ Ram  │
         └──────┘   │    (MMA)     │              └──────────┘   └──────┘
                    └──────────────┘                    •
                  ┌────────┐  ┌────────┐                •
                  │ Global │◄►│  Byte  │◄───────►       •
                  │ Memory │  │Steering│
                  └────────┘  │  ASIC  │            ┌──────────┐   ┌──────┐
                              └────────┘            │  Signal  │◄─►│  SP  │
         ┌──────┐  ┌──────────┐  ┌──────┐           │Processors│   │ Ram  │
         │ Flash│◄►│  i960    │◄►│  CP  │◄─────────►└──────────┘   └──────┘
         │Memory│  │ Control  │  │ RAM  │
         └──────┘  │Processor │  └──────┘
                   └──────────┘
                        │
                   ┌────────┐
                   │ CP I/F │
                   └────────┘
      ┌────┐  ┌──────────┐
  ◄──►│Host│◄►│   Host   │◄───────────────────────►
      │I/F │  │   RAM    │
      └────┘  └──────────┘                    DMA Bus
  PCI Bus
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Functional Diagram

As an alternative, developers can choose the CPi/2400-1T1-PCIU and CPi/3000-1E1-PCIU fax boards, which can be programmed through the legacy GammaLink API.

Functional Description

The DM/F240-1T1-PCIU and DM/F300-1E1-PCIU boards combine 24 (T-1) or 30 (E-1) channels of 14,400 b/s (v.17) facsimile that can perform all the standard functions of a fax machine and more æ including sending and receiving multiple documents, polling, broadcasting, and turnaround polling.

The DM/F240-1T1-PCIU and DM/F300-1E1-PCIU boards use a dual-processor architecture that combines the signal processing capabilities of a DSP with the decision-making and data movement functionality of a general-purpose control microprocessor.

The DM/F240-1T1-PCIU and DM/F300-1E1-PCIU boards provide call processing for either T-1 or E-1 telephony signals from the telephone network or resource sharing for digital signaling and fax information input via the CT Bus.

Technical Specifications**

Hardware

Form factor	Universal PCI (5 VDC or 3.3 VDC)
Size	Full size
Telephony bus	CT Bus, H.100 Fax and network resources are fully exportable.
Power requirements	+5 VDC/19 watt +12 VDC/N/A -12 VDC N/A +3.3 VDC/N/A
Cooling	50°C 2.3 CFM per board 40°C 1.5 CFM per board 30°C 1.1 CFM per board
Operating temperature	0°C to +50°C
Storage temperature	-20°C to +70°C
Humidity	8% to 80% non-condensing

Software

Operating system support	RedHat Linux Windows NT 4.0 Windows 2000 Windows XP
API	R4 (fax) Intel® Dialogic® Global Call (call control)

Fax Features

ITU	T.30, T.4, T.6 V.17, V29, V27ter, V.21
Speed	14.4 Kbps with automatic fallback Send and receive Concurrently on all channels
TIFF	Single page, multi-page
Compression	MH (ITU T.4, 1D) MR (ITU T.4 2D) MMR (ITU T.6) On-board and on-the-fly
ASCII to TIFF	On-board and on-the-fly
Page headers	Generated on-board, on-the-fly
ECM	Supported
Width	A4, A3, B4
Polling	Normal and turnaround
Resolution	Standard (100 x 200 dpi) Fine (200 x 200 dpi) Superfine (200 x 400 dpi)
JPEG/JBIG	Color fax and gray scale fax pass-through feature

Network

Type	T-1 (DM/F240-1T1-PCIU) E-1 (DM/F300-1E1-PCIU)
Connectors	RJ-48C

Network Protocols

T1 CAS	E&M Loop start Ground start
T1 ISDN	DMS100 AT&T 4ESS AT&T 5ESS INS1500
E1 ISDN	Euro-ISDN
E1 CAS	R2-MF

Technical Specifications** (cont.)

Safety and EMC Approvals

FCC	Approved
C-UL	Approved
UL	Approved
CE	Approved

Hardware System Requirements

SR 5.1.1 call-out minimum for DM3 is 200MHZ with 128M (2 or fewer board) or 512M (3 or more boards).

To learn more, visit our site on the World Wide Web at **http://www.intel.com**.

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