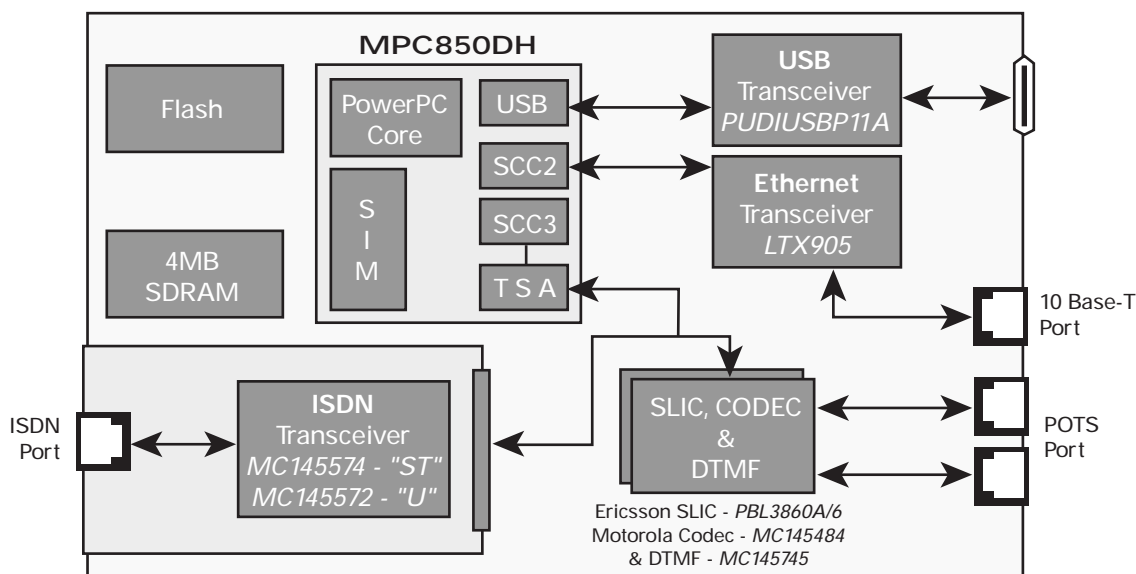


# HIPSTER - SMALL OFFICE ROUTER REFERENCE DESIGN

Motorola's HIPSTER (High Performance 10baseT Ethernet Router) reference design for a small office ISDN-to-Ethernet router is a cost-effective solution for the next generation of low-cost, high-performance LAN-to-WAN routers. The system shown below, when combined with third party software, is a complete hardware and software reference design containing all the basic elements necessary to build a small office router. The system offers the following features:



FEATURE	BENEFIT
ISDN Interface - swappable U or S/T daughter cards	Single motherboard design with simple WAN plug-in to meet all international requirements
Modular WAN Interface	Provides upgrade ability to primary rate ISDN, T1/E1, or xDSL.
10Base-T Ethernet Port	For simple connection to the most common LAN topology.
Two Analog POTS Ports	Ideal for remote site that need to consolidate all external communications over a single line.
USB Port	To enable USB based networks to utilize the ISDN connection.
RS232 Port (not shown)	Monitors port for debug and set-up.
Flexible, Expandable Hardware Design	Enables basic design to form the basis of a range of products, which can be easily expanded to meet future requirements.
Full Reference Schematics and Gerber Files available for Download	Significantly shorter cycle time and development costs, which result in a faster time to market and enhanced profitability.
Modular, Expandable Software Design	Basic software configuration can be expanded to meet specific customer and market requirements, enabling product differentiation.
Third Party Software Customization Available	Third party expertise can add the specific software elements required.


**MOTOROLA**

**For More Information On This Product,  
Go to: [www.freescale.com](http://www.freescale.com)**

# Freescale Semiconductor, Inc.

## Hardware Configuration

At the heart of the HIPSTER system is Motorola's newest Integrated Communications Processor based on the PowerPC™ architecture - the MPC850DH. This device has two high-speed serial communications controllers, each capable of running Ethernet (10Base-T) or multi-channel HDLC (32 time slots) plus a USB interface. The performance capability of this processor enables the same design to support higher speed WAN technologies, including primary rate ISDN. T1/E1, and ADSL.

Processor	Motorola MPC850DH33
Memory	4MB SDRAM 2MB Flash 32KB EEPROM
Ethernet Transceiver	Level One LXT905
ISDN BRI Transceiver <i>The ISDN interface has been designed as a separate daughter card to enable simple configuration to meet international ISDN Requirements</i>	U Interface - Motorola MC145572 S/T Interface - Motorola MC145574
USB Transceiver	Philips PDIUSBP11A
POTS Circuit	SLIC - Ericsson PBL3860A/6 Codec - Motorola MC145484 DTMF - Motorola MC145745

## Software Configuration

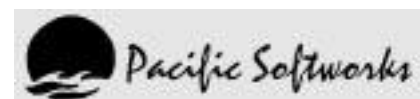
A full Software Suite demonstrating the capabilities of this small office router design has been developed in conjunction with selected third party software vendors such as Pacific softworks and Telenetworks. The software addresses all of the fundamental requirements of such a product with additional functionality and customization available from the third party vendors to meet specific customer and market requirements.

SOFTWARE FEATURES	NOTES
User interface	Both Windows and Web-based GUIs available
ISDN Software Stack	Two 64Kbps channels (or one combined 128Kbps connection) Euro ISDN and N. American National ISDN-1 compatible.
PPP	PPP, SLIP.
Multi-Link PPP	Provides increased bandwidth by aggregating both B channels to give 128 kbps.
Dynamic Addressing	Dynamic allocation of IP Address and DHCP.
Dynamic Routing	RIP, OSPF.
Dial-on-Demand Routing	Establishes an ISDN connection only when needed in order to minimize connection
Remote Management	SNMP, Telnet.
Security Features	CHAP and PAP Authentication.

For more information on Hipster please visit the SOHO Routing website at:

**[http://motorola.com/SOHO\\_Routing](http://motorola.com/SOHO_Routing)**

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