MC143452RDK

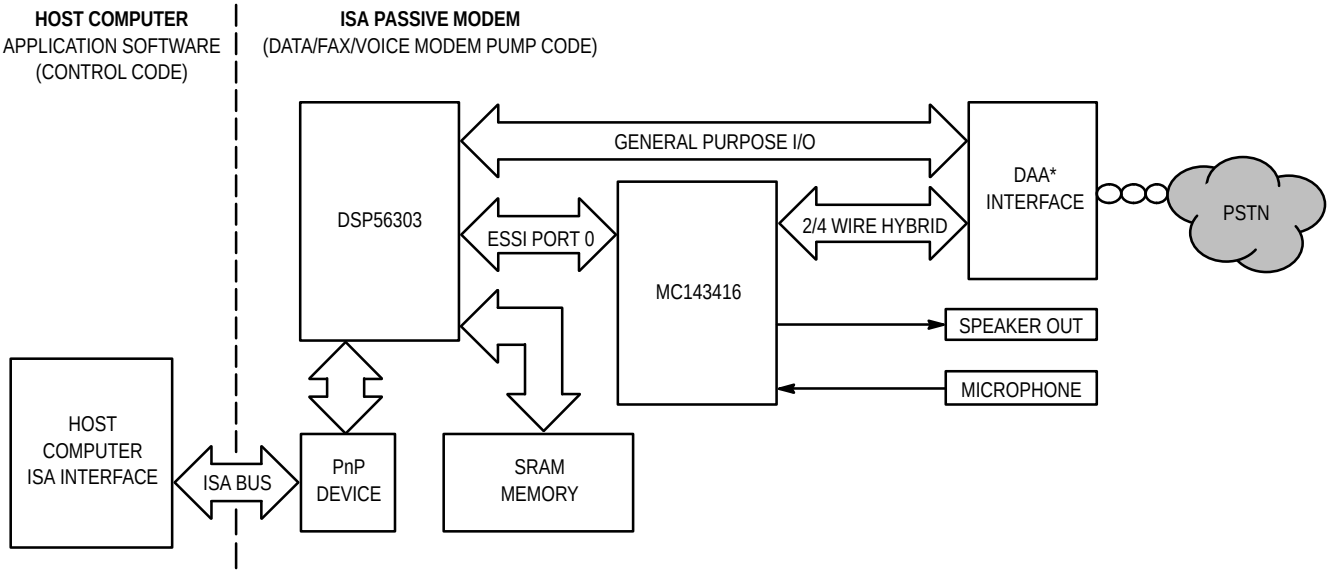
Product Preview

ISA Passive Modem Reference Design Kit

The MC143452RDK ISA Passive Modem Reference Design Kit (RDK) was developed to facilitate the creation of unique Public Switched Telephone Network (PSTN) communication products using Motorola's DSP56303 24–Bit Digital Signal Processor (DSP) and Motorola's MC143416 Dual 16–Bit Linear Codec–Filter*. The critical component of this kit is an internal modem platform which provides a means of testing and evaluation of Motorola's 56K and V.34 1996 data/fax/voice modem activities.

In the passive modem design, modem control code operations are performed by the host computer, while the modem pump code for data/fax/voice applications are executed by the DSP56303. The application software uses the ISA interface to transmit/receive data to or from the DSP56303. All modem software is installed into the host computer and downloaded to the DSP's system memory through the ISA bus interface so that new modem features can be added. The DSP makes use of its built–in host port interface together with a Plug and Play (PnP) device to communicate directly with the host computer. Enhanced Synchronous Serial Interface (ESSI) communicates with the MC143416, which provides Analog–to–Digital (A/D) and Digital–to–Analog (D/A) conversions. The MC143416 is a single–chip implementation of the data/voice converters required for high–speed modems and features a telephony and acoustic codec, clock generation, signal conditioning, programmable sampling rates, built–in analog mixer, and speaker driver.

BLOCK DIAGRAM



* Codec = coder/decoder
DAA = Data Access Arrangement

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Features

- Complete Passive Modem Turn–Key Design
- Programmable DSP and Memory System Consisting of SRAM for Software Upgradability
- Turn–Key Internationalization Support
- ITU–T V.80 (Video Ready), Enhanced Caller ID, Plug and Play Support, and Distinctive Ring
- Data/Fax/Voice Modem with Host–Based Controller
- Operation System Support: Windows™ 95 and Windows NT™

Table 1. DSP Pump Features

Modem Type	Modulation/Function
Data Pump	K56flex™ Compatible Software Upgradable to ITU–T V.PCM ITU–T V.34 1996 — 33.6 kbps to 2.4 kbps ITU–T V.32bis — 14.4 kbps to 4.8 kbps ITU–T V.32 — 9.6 kbps to 4.8 kbps ITU–T V.22bis — 2.4 kbps ITU–T V.23 — 1.2 kbps ITU–T V.22 — 1.2 kbps ITU–T V.21 — 300 bps Automatic Mode Selection Automatic Rate Adaption Digital Near–End/Far–End Echo Cancellation ITU–T V.8 Signalling ITU–T V.8bis Signalling ITU–T V.54 Test Loopback Support Internationalization Support for Call Progress
Fax Pump	ITU–T V.17 — 14.4 kbps to 9.6 kbps ITU–T V.29 — 9.6 kbps to 4.8 kbps ITU–T V.27ter — 4.8 kbps and 2.4 kbps ITU–T V.21 Channel 2 — 300 bps
Voice Pump	Full–Duplex Speakerphone Pump with Automatic Gain Control and Room Monitor Answering Machine

Table 2. Host Control Features

Control Type	Control Code	AT Command Set
Data Control	ITU–T V.42/MNP®2–4 Error Correction ITU–T V.42bis/MNP5 Data Compression ITU–T V.80 Sync Access Support	Hayes™ AT Commands
Fax Control	TIA/EIA 578 Class 1 Fax Class 2 Fax ECM Fax T.30	AT+ Commands
Voice Control	Full–Duplex Speakerphone Controller Telephone Answering Machine Controller	AT# Voice Support

Documentation

More detailed documentation describing components and software is available from a local Motorola distributor or semiconductor sales office, or through a Motorola Literature Distribution Center.

Document Title	Order Number
MS143452SK ISA Passive Modem Chip Set and Software Product Preview	MS143452SKPP/D
MC143452RDK ISA Passive Modem Reference Design Kit Manual	MC143452RDK/D*
DSP56300 24–Bit Digital Signal Processor Family Manual	DSP56300FM/AD
DSP56303 24–Bit Digital Signal Processor User's Manual	DSP56303UM/AD
DSP56303 24–Bit Digital Signal Processor Technical Data	DSP56303/D
MC143416 Dual 16–Bit Linear Codec–Filter	MC143416/D

*Available December 1997

Note: For the most current information regarding this product, contact Motorola on the World Wide Web at http://www.motorola.com/modem–chipsets

How to reach us:

USA / EUROPE / Locations Not Listed: Motorola Literature Distribution; P.O. Box 5405, Denver, Colorado, 80217. 1-303-675-2140 or 1-800-441-2447

Mfax™ : RMFAX0@email.sps.mot.com – TOUCHTONE 1-602-244-6609
Motorola Fax Back System – US & Canada ONLY 1-800-774-1848
– http://sps.motorola.com/mfax/

HOME PAGE : http://motorola.com/sps/

JAPAN: Nippon Motorola Ltd.; SPD, Strategic Planning Office; 4-32-1, Nishi-Gotanda; Shinagawa-ku, Tokyo 141, Japan. 81-3-5487-8488

ASIA / PACIFIC: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park, 51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298

CUSTOMER FOCUS CENTER: 1-800-521-6274

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