

MC143457EVK

Product Preview

Multichannel Infrastructure Modem Evaluation Kit

The Motorola MC143457EVK is a complete modem solution for infrastructure modem applications. This DSP-based Multichannel Infrastructure Modem (MIM) is completely upgradable via software, which ensures that the MIM Evaluation Kit is ready to receive the latest in field upgrades and infrastructure applications such as vocoders for voice over internet protocol, and gateway hosting. The MC143457EVK offers an enabling evaluation system to address the infrastructure modem market. Combining the controller functionality of the PowerPC™ MPC860 product family with the high performance DSP56300 family and glueless, low power FSRAM devices allows Motorola to provide a total system solution.

The MC143457EVK comes complete with all the hardware and software needed to evaluate an analog modem “head end,” or modem termination system. The data pump software provides a direct digital, 8 kHz sampled, PCM data interface. This allows a seamless digital TDM connection onto an E1/T1 interface, eliminating the need for codecs and other costly glue hardware. Another key benefit of this solution is the memory efficiency of the re-entrant modem software, allowing a highly scalable and upgradable architecture.

The MC143457EVK is designed to enable the evaluation of the performance and functionality of the entire Motorola solution. The board consists of three main parts: the main MEP board, an additional network interface daughter card, and an optional SIMM-style daughter card, which consists of an additional five DSP56303s with associated 128K x 24 FSRAM devices.

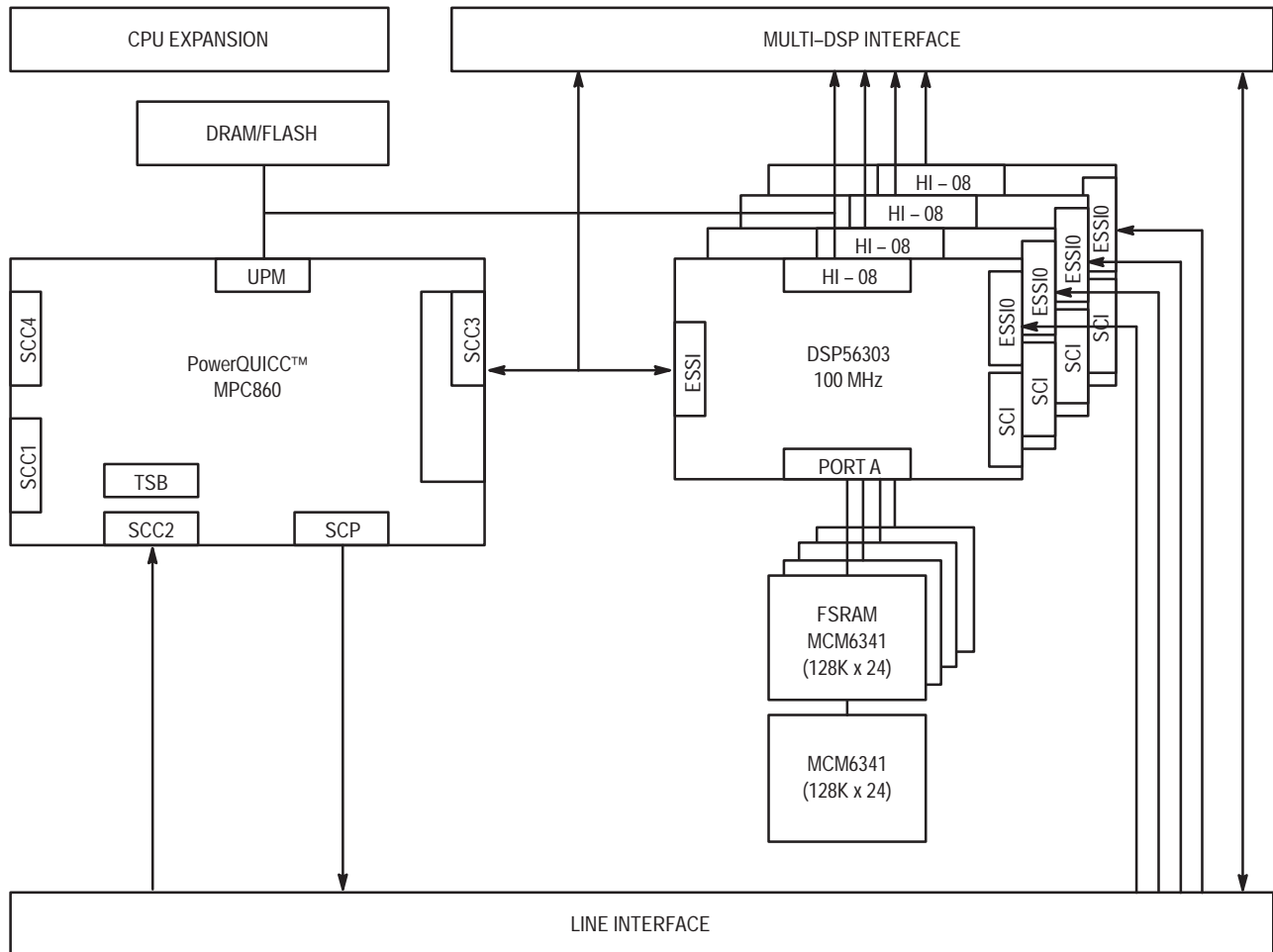
The MEP board consists of four DSP56303s. The first three DSP56303s each have a single 128K x 24 asynchronous FSRAM (MCM6341). In addition, the final DSP56303 has 256K x 24 assigned to it in the form of two 128K x 24 devices, to enable more software flexibility if required. These are all controlled by an MPC860 PowerPC controller. Each of the DSP56303s can handle up to three full-duplex V.90/V.34 (1996) modem channels simultaneously.

The MC143457EVK offers a cost effective solution that enables multiple modem channels to run on a single DSP56303, while enabling a concentrated low power consuming design, which is adaptable to suit the needs of both telecom equipment providers and remote access systems manufacturers.

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HARDWARE BLOCK DIAGRAM



Features

- Motorola system solution includes: MPC860MH, DSP56303, and MCM6341 (128K x 24).
- Support for up to 12 modem channels on the motherboard, with option to expand up to 27 channels with the inclusion of the SIMM-style daughter card.
- Provides a full-time slot-selectable TDM link — suitable for multiple T1 or E1 connections.
- Parallel communications/data path and capabilities for future 2 Mbps serial data link between MPC860 and DSP56303s.
- SIMM-style daughter card module available offering five DSP56303s and 128K x 24 single wait state FSRAMs. Motherboard has SDRAM SIMM module for added system flexibility.
- Evaluation board design enables accurate measurement of DSP56303 and MPC860 power consumption.
- Data/fax/voice features per tables below.

| Modem Type | Modulation/Function | Control Code |
|------------|--|--|
| Data Modem | ITU-T V.91 (Q2 99) ITU-T V.90 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.26bis (Q2 99) 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 Bell 212A — 1.2 kbps Bell 103 — 300 bps ITU-T V.8 Signalling ITU-T V.8bis (Q2 99) K56flex™ (Q2 99) | ITU-T V.42 Error Correction ITU-T V.42bis Data Compression MNP®2–4, MNP®10 Protocol Error Correction MNP®5 Data Compression GSM Synchronous and Asynchronous Data Modes (Q2 99) V.110 (Q2 99) Multifrequency Tone Support R1/R2 Multichannel DTMF Multichannel HDLC Dynamic Power Saving Features and Sleep Modes Modem Control Code for AT Commands |
| Fax Modem | 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 | T.30 Fax Over PSTN T.37 Fax Relay (Q2 99) T.38 Fax Over IP (Q2 99) Fax Class 1 Support (Q3 99) TIA/EIA 578 Class 1 |

- Speech processing is available, but not included with the MC143457EVK.


| Modem Type | Modulation/Function | Control Code |
|-------------------|---|------------------------------------|
| Speech Processing | ITU-T G.723.1 (Including Appendix A) ITU-T G.729 ITU-T G.729A/B ITU-T G.726 ITU-T G.711 ITU-T G.165/168 GSM FR GSM EFR | Echo Cancellation ITU G.165/168 |

Documentation

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

| Document Title | Order Number |
|---|---------------|
| 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 |
| MPC860 PowerQUICC User's Manual | MPC860UM/AD |
| MCM6341 — 128K x 24 Bit Static Random Access Memory | MCM6341/D |

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

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