DATASHEET

Hammer FX-TDM

Feature Testing Platform for Next Generation Enhanced Services

FEATURES

- Intuitive interface facilitates test creation, execution, and monitoring
- Robust media capabilities: play and detect digits, tones, and voice
- Industry-standard voice quality scoring and analysis
- Patented, integrated speech recognition validates system performance
- Optional Hammer Call Analyzer (HCA) provides detailed signaling and media analysis
- Seamless integration with Hammer TDM/IP functional and load test systems

BENEFITS

- Intuitive user interface simplifies test creation, execution and monitoring of both simple and complex call flows
- Robust media capabilities and industry-standard voice quality analysis enusre comprehensive, accurate assessment of media channel functionality
- Integrated speech recognition with prompt library simplifies real-world performance assessment of media channel
- Troubleshoot complex calls using HCA's in-depth signaling and media analysis
- Seamless integration with Hammer IP and load test systems lets you leverage common scripts and provides a single point of control for integrated load and functional testing

TYPICAL TEST APPLICATIONS

- Application and media servers
- End-to-end voice quality
- Fax and unified messaging
- Enterprise PBXs and gateways
- Auto-attendants and IVR
- Conferencing
- Announcement servers

The Hammer FX-TDM has been specifically designed to speed the development and validation of analog and TDM based components and systems, reducing time-to-market for nextgeneration network equipment manufacturers and service providers. Its powerful combination of highly configurable signaling and comprehensive media capabilities makes it ideal for interoperability and negative testing of a broad range of applications and devices, including conferencing, messaging, Class 5 features, IVRs, Centrex and PBXs.
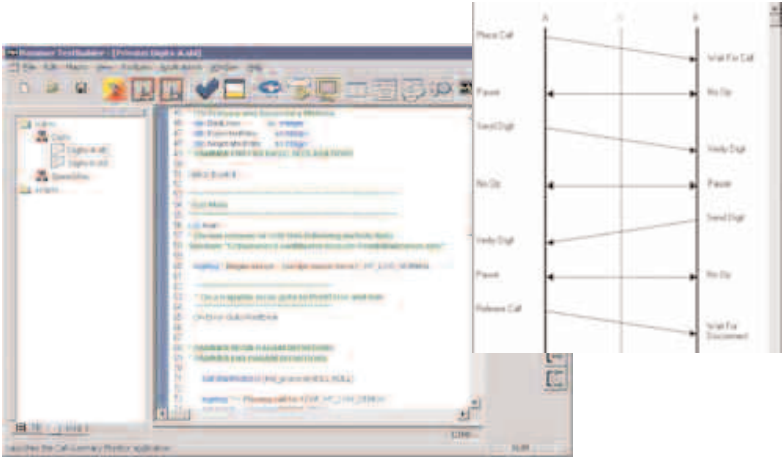
The Hammer FX-TDM's dual complementary test creation interfaces provide the choice of a simple, graphical TestBuilder environment or the uniquely flexible, highly programmable Hammer Visual Basic (HVB) scripting tool. Each script runs independently on its own channel and can share information with other channels or devices, making it ideal for testing even the most complex applications.

Integrated Hammer Test Environment

The FX-TDM interoperates seamlessly with the Hammer FX-IP™, and both share a common signaling engine and architecture with the Hammer NXT™ load test system. Customized protocol and signaling configurations can be ported between the two platforms. Using the Hammer FX and NXT and the Hammer Mega-Controller™, engineers can create a single, integrated test environment that speeds integrated feature and load testing for multimedia network equipment.

Multiple Configuration Options

Flexible configuration options allow systems to start small and grow with your applications. A variety of signaling is available on Hammer FX-TDM including ISDN, SS7, CAS and analog. Both portable and rack-mount systems are available.

Powerful and flexible Hammer Visual Basic and Hammer's industry-standard call flow ladder diagram help speed test creation.

Features

Interfaces, Signaling and Media
- TDM Interfaces
  - 2 to 28 T1 or E1 spans (T1/E1 is software-selectable)
  - 8 to 192 Analog FSK ports
- Channels: Up to 672 per system, depending on test application
- Signaling: Capacity over 60 cps, call rate dependent on test application
- Analog: Pulsed E & M, Analog Loop Start
- CAS: MFC R2, R1.5, Wink start, Digital Loop and Ground Start
- ISDN: PRI, NFAS
- Clear Channel Support

- SS7
  - SS7 ISUP and TUP, ANSI 92, ANSI 95, ITU White and Blue book, China and Japan
  - V.35, T1 or E1 link support
  - Extensive international variant support and low-level IE and message access
- Media Capabilities
  - G.711 A-law and Ì-law
  - Real voice prompts (provided or user-supplied), tones, DTMF, fax
  - Individual channel control for all media features including play and record
  - Full access to server features such as speech recognition or voice quality options

Test Creation, Execution and Monitoring
- Enhanced Hammer Visual Basic: Maximum Flexibility and Control
  - Flexible, comprehensive scripting environment
  - Import and modify TestBuilder scripts
  - Support for conditional branching allows users to customize test scripts
  - Import previously developed HVB scripts from other Hammer test platforms
- Configurable Test Scheduling
  - Test scheduling options including traffic profiles and multiple call flows
  - Per channel, mixed media test scheduling
  - Customizable phone number assignment
  - Run multiple tests simultaneously

- TestBuilder: The Fastest Way to Build Simple Tests
  - Industry-standard ladder diagram and call flow icons for intuitive test creation
  - Create sending and receiving side tests with no script generation required
  - Predefined tests for faster and easier testing
- Real-Time Monitoring and Reporting
  - Real-time monitoring and reporting of call statistics and errors
  - Monitor activity on all channels or on a single channel
  - Comprehensive report set and data management
  - Predefined test reports for simplified test analysis
  - Export test data to other applications for customized user reports

System Options
- Hammer Call Analyzer
  - Advanced, protocol-aware capture, search and filtering
  - Real-time, multi-stage call flow display
  - Automatic call association across signaling domains
  - Easy trace import and export
- Patented Speech Recognition
  - Speech-to-text verification provides speaker independent performance validation
  - Faster speech recognition script development using graphical TestBuilder user interface
  - Enhanced diagnostic information with ability to save prompts for post-test analysis
  - Dynamic speech recognitionvalidates variable dates, dollar amounts, and other dynamic values

  - Easy to build, extensible grammar libraries to support new or variable prompts
  - Support for 28 foreign language grammar libraries
- Voice Quality Test Suite
  - Supports industry-standard PESQ, PSQM, PSQM+ and PAMS scoring algorithms
  - Comprehensive, ITU-compliant prompt set — complete phrases use real human speech
  - VQScope simplifies degradation analysis by comparing prompt sent with prompt received
- Hammer Mega-Controller
  - Manage up to 10 different Hammer systems from a single point of control
  - Consolidates test data management, scheduling, and reporting

System Requirements and Specifications
- 4U Rack-Mount Chassis Configuration
  - 2.8 GHz Pentium 4 CPU
  - 1 GB PC2100 RAM
  - 80 GB 7200RPM IDE hard drive
  - 10/100/1000 Ethernet NIC
  - PCI sound card w/external speakers
  - Windows 2003 Server
  - 400 Watt Power Supply (100 ~ 240 VAC @6.3A max; 50/60 Hz)
  - Includes rack mounting hardware
  - Dimensions: 7" (H) x 19" (W) x 20.5" (D)

- Transport2 Portable Configuration
  - 2.0 GHz Pentium 4 CPU
  - 1 GB PC400 DDRAM
  - 80 GB ATA/100 hard drive
  - 10/100 Ethernet NIC
  - PCI sound card
  - Windows 2003 Server
  - 400 Watt Power Supply (100 ~ 260 VAC @6A max; 50/60 Hz)
  - Weight: 24 lbs
  - Dimensions: 10.6" (H) x 16.1" (W) x 9.8" (D)

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