

**RSI**

REDONDO SYSTEMS INC

FrontEND

**Tactical Data Link
Communications
Front End Processor**

Redondo Systems Incorporated (RSI) has been a leading provider of products and services in the areas of tactical data link and radar interface processing for over 20 years. RSI's product lines include fielded tactical data link and radar communications systems, radar and data link simulation systems, as well as stand-alone software packages and custom hardware solutions. RSI's major customers include:

- ♦ U.S. Army
- ♦ U.S. Air Force
- ♦ U.S. Navy
- ♦ U.S. Marine Corps
- ♦ Raytheon
- ♦ Northrop Grumman
- ♦ Lockheed Martin
- ♦ Rockwell Collins
- ♦ Thomson CSF
- ♦ EADS
- ♦ BAE
- ♦ SAIC

RSI's FrontEND is an off-the-shelf PC based front end tactical data link communications processor and data link forwarder. FrontEND allows one or more host systems to simultaneously participate on and/or monitor multiple data link interfaces. Control and status, graphics, and raw message data is translated into a common format and output over a LAN to the host system(s). FrontEND accepts system and link control data as well as track updates and track control data allowing the host system full access to, and control over, the interfaced links. FrontEND can use N-Series messages and protocol to provide the common interface or can be modified to accommodate our customers unique common interface requirements. FrontEND is highly configurable by utilizing RSI's Operational Core user interface package and then layering multiple tactical data link interfaces from RSI's Interface Package Library (IPL[†]). New customer application-specific requirements are easily accommodated.



FrontEND is a turn-key system requiring only a minimal operator interface for system maintenance and is typically provided with an integrated Keyboard/Display ...



...FrontEND's user interface can also be expanded to include a full dual display interface with extender user capabilities.

FrontEND Interface Capabilities Include:

♦ Data Links

♦ Link 16 <i>MIL-STD-6016</i> <i>STANAG 5516</i> <i>JTIDS TIDP</i> <i>(Multiple Revisions)</i> <i>Smart Host for:</i> <i>Class 2H (1553B)</i> <i>Class 2M (ADDISI)</i> <i>MIDS (multiple I/Fs)</i>	♦ Link 11, Link 11B <i>MIL-STD-6011</i> <i>STANAG 5511</i> <i>JCS Pub 6</i> <i>(Multiple Revisions)</i> <i>TDS interfaces:</i> <i>NTDS (Parallel)</i> <i>ATDS (Serial)</i> <i>MIL-STD-188-203</i> <i>MIL-STD-188-212</i>	♦ NATO Link 1 <i>STANAG 5501</i> <i>(Multiple Editions)</i> ♦ ATDL-1 <i>MIL-STD-6013</i> ♦ FAAD Data Link ♦ NATO Link 14 ♦ USMTF 2000	♦ TIBS ♦ VMF ♦ IDL ♦ UDL ♦ MBDL ♦ Lateral Tell ♦ Forward Tell ♦ TESS ♦ ICAO
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♦ Common Interface Standard

- ♦ N-Series Messages

♦ Data Link Forwarding

- ♦ Link 16 ◀▶ Link 11/11B

♦ Data Link Translation

- ♦ IDL ◀▶ Link 11/11B, FDL, UDL, ATDL-1

♦ Interface Protocols & Standards

♦ RS-232 ♦ RS-422 ♦ RS-449 ♦ RS-485	♦ EIA-530 ♦ EIA-530A ♦ SCRAMNET ♦ V.35	♦ V.36 ♦ X.25 ♦ HDLC ♦ ADDSI	♦ TCP/IP, UDP, MULTICAST
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[†] External data link interface packages from the IPL may also be procured from RSI for direct integration into our customers in-house projects. RSI provides a well documented message based programming interface that is common to all of it's IPL packages.

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FrontEND System Features

User Interface

- Multiple tactical displays
- Multiple hook readouts
- Operator input dialogs
- System operational status

Hardware Configuration

- Ruggedized chassis
- Rack mount option
- Off-the-shelf I/O Cards
- Dual display monitors

Common Host Interface

- N-Series messages
- FrontEND can be configured to meet any common interface requirements

Link 16 Terminal Interface

- JTIDS network download files (read and create)
- Smart Host (terminal control and monitoring)

Link 11 Circuit Control and Monitoring

- Equipment configuration and monitoring (DTS, receivers, transmitters, power amplifiers, filters, antennas)
- DTS controls (transmit/reset, radio silence, picket/NCS, net mode, waveform, data rate, receive mode, diversity, Doppler, sync, error correction, response times)
- Discreet statuses (receiver, transmitter, power amplifier)

Track Database

- 2000 objects (minimum)

Network Support

- Multiple workstations
- Distributed processing
- Integrated situation awareness

GPS Interfaces

- GPS Sync, IRIG-B

Automatic Initialization

- Turn-key operation
- User defined adaptation parameters
- JTIDS network download files

Data Recording

- All message traffic
- All operator actions

Data Reduction

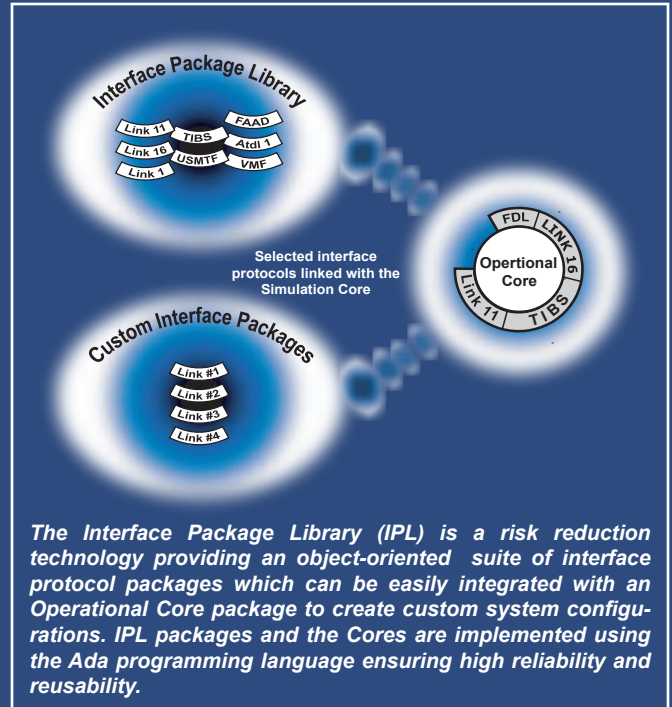
- Real-time and after-action reporting (DERG compliant)
- Extensive filters
- Prose, hex, octal and binary
- Operator actions

Playback

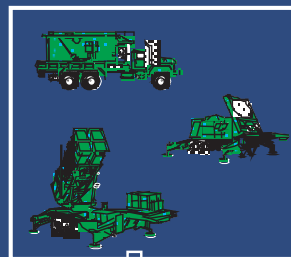
- Processes recording files
- Recreates tactical displays
- Recreates online DX

FrontEND System Description

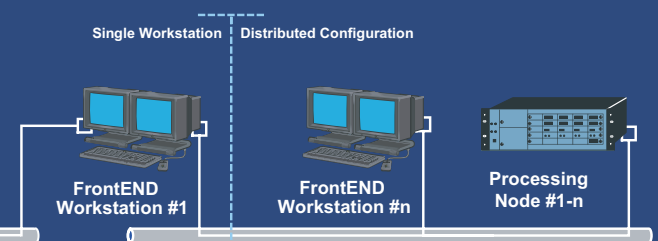
RSI's FrontEND is a turn-key, PC based data link communications front end system that uses ruggedized, commercial off-the-shelf hardware configurations for enhanced reliability and durability. FrontEND allows direct participation and monitoring of all configured data links using a common link interface to communicate with its host system(s). Track, control, and status data are received and transmitted between FrontEND and its host system through a common link interface, typically N-Series messages and protocol. FrontEND creates tracks in its track database from input host data and received track messages. External interfaces configured into the FrontEND independently scan the Track Database both on a periodic and on-demand basis to generate the appropriate messages for output. Message generation and processing is based on the requirements of the associated specification for each configured external interface (e.g. MIL-STD-6016B). Data received over a configured external interface is validated for errors and processed for automatic link responses (R² shifts, ID conflict processing, command processing, etc.).



A minimal user interface for system maintenance and installation is typically provided, however an extended user interface as well as single or dual display options are available. Extended user interface capabilities include pull-down and context specific pop-up menus which simplify definition of the tactical data link environment. Pre-defined world maps, standardized tactical symbology, user defined map areas, integrated satellite imagery and digital terrain maps (DTED) provide enhanced visualization. Extensive user-friendly controls including display and data filtering, range/bearing functions, display zoom and offset, track histories, and allow operators to configure and use the tactical displays to provide optimal data visibility for situation awareness and analysis. FrontEND's extended user interface is optimized for operational use and provides extensive automated functions and operator alerts for tactical conditions reported/detected for configured data links.



FrontEND Host Ethernet Interface
(N-Series Messages)



FrontEND Workstation Ethernet Interface

FrontEND is normally configured as a single workstation supporting multiple data links and interfaced via LAN to its host system. The number of external data link interfaces supported by a single workstation is virtually unlimited. When more external interfaces are required, FrontEND can be configured as a distributed network supporting multiple integrated workstations and processing nodes. In this configuration, FrontEND provides distributed processing and operator controls while maintaining fully integrated situation awareness and data availability at each workstation. Additional processing nodes can easily be added when elements of the system are physically separated. Single and dual display options are available.