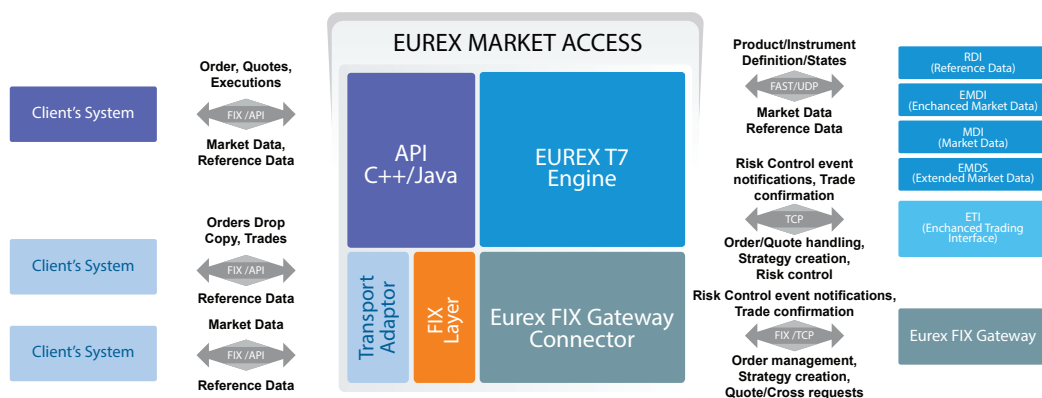


# EUREX Exchange Direct Access

EPAM provides comprehensive connectivity solution for direct access to EUREX Exchange, supporting all functionality of T7 new trading architecture as well as functionality of Exchange's FIX Gateway. The solution is based on high performance FIX Antenna™ engine and consists of the following modules:

- > Eurex T7 Engine enabling access to all market data and trading interfaces available through T7 trading architecture:
  - Supported market data interfaces: Eurex FIX/FAST high- and low-bandwidth market data interfaces (EMDI/MDI) and Reference Data (RDI)
  - Supported trading interfaces: Enhanced Trading Interface (ETI), High Frequency (HF), Low Frequency (LF) and Back Office session types.
- > Eurex FIX Gateway Connector allowing access to Eurex FIX Gateway to submit orders and receive trades



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# EUREX Exchange Direct Access

## Components Overview

### EUREX T7 Engine: Market Data

- Maintains connection to Eurex Market Data Interfaces via UDP
- Enables access to all types of market data available on Eurex Market feeds (Product definitions, Instrument definitions, Feed IPs and ports, Product statuses, Instrument statuses, Order book snapshots, Order book updates, Trades, Statistics, Quote requests, Cross requests, Settlement prices, Open interest, OTC trades, Ticker data )
- Ability to detect and recover lost messages via snapshot automatically

### EUREX T7 Engine: Trading Session

- Fully supports workflow of the T7 trading interface, High Frequency (HF), Low Frequency (LF) and Back Office session types
- Provides ability to recover missed messages in the case of a late join or intraday reconnection via the EUREX ETI retransmission mechanism
- Follows FIX 5.0 SP2 semantics
- Supports message throttling according to the ETI session throttle limits

### Eurex FIX Gateway Connector

- Supports all trading functions of EUREX New Trading Architecture
- Provides access to Trading Session data (order management, strategy creation, request for quote and cross request) and Back-office Session data (trade confirmation, drop copy)
- Enables participants to subscribe to private trading data in broadcast form
- Compliance with Eurex FIX 4.4 dictionary
- Provides failover mechanism via the alternative connection

## Key Features:

- > Tested against Eurex T7 release 2.0 and 1.2 in the dedicated Simulation Environment
- > Support of all features of T7 new trading architecture functionality of and chosen Eurex interface
- > Hides connectivity details from the user, automatically applies decoding (where applicable)
- > High Throughput / Low Latency achieved by leveraging all relevant features of FIX Antenna™
- > Flexible API allowing user to receive product and instrument definitions, subscribe to market and private trading data via call-back interfaces
- > Easiness and flexibility of configuration:
  - Session parameters are configurable via a configuration file and / or API calls
  - Ability to adjust FIX dictionaries and FAST templates (where applicable)
- > Ease of monitoring & administration
- > Supported platforms:
  - OS: Windows / Linux / Solaris
  - Compilers: GCC 3.4.X, 4.0.X / MS Visual Studio 2005, 2008, 2010 / JDK 1.7 and above

## Performance:

### Test Scenario

Measurement scenario includes receiving market data of an instrument via the EMDI interface, submitting a limit order on every Nth update of the instrument order book via the ETI interface, cancelling every unexecuted order on new order response via the ETI interface.

### Test Environment

- Intel Core i7-3770K @ 3.50 GHz
- Linux CentOS 6.4 64-bit
- Eurex Simulation Environment

### Measured items

#### EMDI to ETI Latency

- EMDI receive / ETI send
- EMDI A/B arbitration
- EMDI message FAST decoding
- EMDI message processing
- Order book update
- ETI message generation
- ETI session level processing
- Socket-to-socket

#### ETI to ETI Latency

- ETI receive / ETI send
- ETI message parsing
- ETI session level processing
- ETI Message generation
- ETI session level processing
- Socket-to-socket

## Measured Latency:

|             | Min (us) | Median (us) | Max (us) | Mean (us) |
|-------------|----------|-------------|----------|-----------|
| EMDI to ETI | 6.1      | 7.5         | 22.5     | 7.5       |
| ETI to ETI  | 1.3      | 1.4         | 11.0     | 1.5       |

Latency Distribution

