

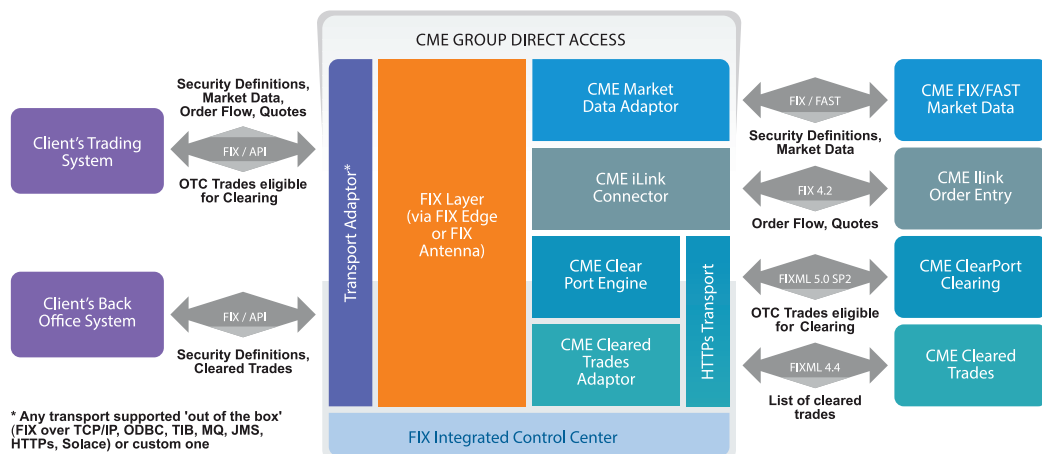
CME

Group

Direct Access

EPAM provides pre-certified solutions for direct access to CME Group FIX, FAST and FIXML interfaces covering order entry, market data processing and trade reporting. The solutions are based on FIX Antenna™ engine, a world leader in high-performance FIX/FAST message processing, and/or FIX Edge™, an intelligent routing hub and consist of the following modules:

- > Market Data Adaptor enabling access to CME FIX/FAST Market Data Feed (release of CME MDP 3.0 Adaptor is scheduled for as early as mid-November 2013)
- > iLnk Connector allowing submitting orders via CME iLink Order Routing
- > Cleared Trades Adaptor allowing real-time subscription for trades available via CME Cleared Trades FIXML 4.4 API
- > Clear Port Reporting Engine allowing trades submission to CME ClearPort



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Components Overview

iLnk Connector

- Supports all requirements of CME iLnk Order Routing interface including those, which are related to week long session and audit
- Supports CME FIX 4.2 dictionary
- Fully supports workflow defined for CME Trading Session
 - New single / cross order requests
 - Order modification and cancelation
 - Security definitions
 - Quotes and Mass Quotes
 - Executions
- Provides ability for order state change tracking
- Added latency on 100 Mbps network
 - 16 microseconds' with persistence and
 - 6 microseconds' latency without persistence

Market Data Adaptor

- Maintains subscription to one or multiple instruments
- Supports all features of CME market data channels (including recovery) with latency under 15 microseconds
- Maintains connections to the CME Market Data feeds via
 - UDP (Snapshots feed, Security Definitions feed, Incremental Updates feed)
 - and to CME TCP replay channels
- Provides ability to load CME configuration and FAST template files to use connection parameters and adjust FAST decoder accordingly
- Automatically builds and updates order books from market data snapshot and incremental messages
- Provides ability to customize logic on the low level to define custom recovery strategy

Cleared Trades Adaptor

- Fully automated process of real-time trades capturing
- Support of all filters defined by CME ClearedTrades to make trade capturing process as flexible as possible
- Recovery tool to prevent trades loss in case of failure
- Allows seamless integration with internal Client's systems via ODBC, TIB, MQ, JMS and other middleware

Clear Port Reporting Engine

- Ability to report CME, CBOT, NYMEX, COMEX and DME trades via CME ClearPort FIXML 5.0 SP2
- Ability to request details of tradable securities, as well as entity reference data
- HTTPS support, encapsulation and masking of the connectivity specifics.
- Fully supports workflow defined by CME ClearPort

Key Features:

- > User oriented:
 - Supports all features of chosen CME interface while hiding all feed specifics from end-user
- > High Throughput / Low Latency achieved by leveraging all relevant features of FIX Antenna™
- > Simple intuitive API allowing user: (for .dll solution)
 - to subscribe/unsubscribe for data using filters defined for certain CME interface
 - to receive security definitions, snapshots, increments, news and security statuses via call-backs
- > Ease of monitoring & administration:
 - Rich UI assuring ease and simplicity of configuration and maintenance, as well as allowing real-time monitoring of session statuses and parameters
- > Supported platforms:
 - OS: Windows / Linux / Solaris
 - Compilers: GCC 4.1.x / MS Visual Studio 2005, 2008, 2010 / .NET Framework 2.0 – 4.0 / JDK 1.5 and above
- > Myricom DBL support

Performance:

Test Scenario	This test measures latency of the CME Globex Market Data adaptor and FIX Engine on Tick-to-Trade scenario. Test includes internal implementation and does not include sockets.
Test Environment	<ul style="list-style-type: none"> • Intel Core i5-650 @ 3.33 GHz • Windows 7 SP1 64-bit • CME Globex Simulation Environment
Measured latency items include	<ul style="list-style-type: none"> • Messages sequencing and feed A/B arbitrage • Decode FAST message • Representing FAST message as FIX message • FIX message processing and Order Book management • New Order Single generation • FIX session level processing up to TCP socket

Measured Latency:

Min (us)	4
Median (us)	12
Max (us)	155
Mean (us)	13

