

## ParAccel Analytic Database: Trading Analytics for Financial Services

### The Most Accurate Up-to-Date Assessment of Risk and Pricing for Asset-Backed Securities

#### Paraccel In Action For Trading Analytics

The multibillion-dollar trading desk of a leading international banking group needed to build a more significant market advantage in the trading of mortgagebacked securities. However, they were hindered by a slow, inflexible system that only provided a limited set of “commodity” bond and loan performance data to traders, major corporations and other financial institutions. They experienced costly delays when introducing and testing new analyses, and new data and the subsequent analysis took as long as four days to load and complete using their legacy system.

For more information please  
contact us at [info@paraccel.com](mailto:info@paraccel.com)  
or call 866.903.0335

[www.ParAccel.com](http://www.ParAccel.com)

Organizations engaged in the trading of asset-backed securities (ABS) need to constantly seek out new ways to leverage the most current data and accelerate the time-critical analysis traders and clients require. Clients in particular have come to demand much more rigorous assessment of price and the underlying risk given the central role that assetbacked securities played in the recent economic crisis. Financial institutions know that the ability to get answers into the hands of traders and customers before the competition provides a distinct source of advantage for their clients—like a legal form of “insider trading.” But they are often undermined by legacy analytics solutions that:

- Lack the ability to easily integrate and use new information from a diverse range of sources
- Cannot perform rapid, complex analysis across vast and ever-growing data storehouses
- Do not provide timely, relevant insight into potentially high-risk “Black Swan” events

In an increasingly connected world, far off events can have an immediate and material impact on the levels of risk associated with each individual instrument. For instance, changes in governments in the Middle East, tightening access to funds for housing stock in China, and changes in unemployment rates in Europe can filter through to the risk/demand profiles for

US-based mortgage-backed securities. The ability to incorporate “six degrees of separation” into analyses can bog down traditional analytic platforms – forcing firms to take a batch-oriented approach that slowly grinds through the data and inter-relationships. This threatens to leave traders in the dark while competitors pick off their most lucrative clients with more accurate and up-to-date information.

#### The Solution: PADB

#### ParAccel Analytic Database for Competitive Advantage

With the ParAccel Analytic Database (PADB), analysis across thousands of individual ABS instrument takes minutes, rather than relying on a batch-oriented approach that can require days to complete. With ParAccel, firms are able to an open and iterative process that enables them to dig deeper into their data to unlock more of its intrinsic value.

This enables them to trigger new analytic processing in response to any market development – enabling them to stay on top of traders, clients and markets in near real-time. Financial firms can now build up their competitive advantage through the ability to lock in the most lucrative clients with timely and more accurate pricing that reflects the latest developments.

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### Requirements

- ▶ **High performance solution** that could scale their analytics across 25,000+ individual instruments.
- ▶ **Flexible and open platform** that allowed for ad hoc analysis across detailed loan and securities data without the need for the data to “prepped” – forcing them to idle their analytic processes until the most current data was finally available.
- ▶ **Ability to incorporate a much wider range of financial information** that could immediately be put to use to update and fine-tune their analytics.

### Results

- ▶ **On demand intraday approach** that enabled the bank to dynamically price and re-price asset-backed securities as analytic processing and load times shrank from 4 days to under 10 minutes.
- ▶ **Increased trading volume and profits** as institutional clients came to rely on the bank’s market leading expertise days ahead of the competition.
- ▶ **Ability to support large spikes in analytic demand** in response to market events, as well as for daily, weekly, monthly, quarterly and year-end processing.

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Using PADB, companies can incorporate data from any available source, often on the fly, without costly delays and data workarounds. The ability to immediately run their analytics on new and existing sources of data dramatically improves the ability to get the most accurate information out to traders and customers while it’s still valuable. The use of sophisticated embedded analytics directly with PADB provides not only a 10X-100X performance boost compared to traditional approaches to advanced analytics, but also makes those analytic functions available to a much broader audience through existing tools and skillsets. Many asset-backed securities come with unique terms and conditions particular to that instrument.

PADB’s unconstrained approach delivers a highly customizable analytics that can accurately deliver results across thousands of unique contracts.

The market for asset-backed securities in the U.S. alone has climbed from approximately \$100B in 1991 to a projected \$2 trillion twenty years later. Firms can confidently scale their analytics to keep pace, using PADB’s modular platform that can linearly grow analytics regardless of the data volume or number of instruments being analyzed. The ability to scale to petabytes also provides the ability to incorporate highly detailed data from numerous sources as well as the ability to retain a rich historical perspective for risk and demand assessment for ABS.

The ParAccel Analytic Database enables firms to do concurrent and massively parallel loading of data from multiple sources directly into the database. This enables trading firms to scale analytics across more data sources and also ensures that their high-performance analytics are always working with the most up-to-date information.

### The ParAccel Enterprise Analytic Platform

ParAccel, creator of the world’s most powerful analytic platform, provides the agile and scalable analytic performance that financial services organizations need in the emerging era of “Big Analytics”. Support for complex analytics avoids the need to dumb down analytics, limit the amount and/or variety of data in use, or leverage overly cumbersome multi-step processing. PADB’s leadership in enterprise analytics is based on a multifaceted approach to analytics.

### High-Performance:

PADB has been architected from the ground up to handle the largest and most complex analytic workloads. Its multilevel approach eliminates analytic bottlenecks across processors, disks, and networks to enable analysts to push their analytic boundaries beyond the limits imposed by traditional solutions. ParAccel’s patent-pending OMNE optimizer and its ability to fully compile incoming queries on the fly deliver multiple orders of magnitude improvement in performance compared to traditional OLTP-optimized databases. PADB even provides more than 10X better performance compared to other analytic databases. Its MPP-based architecture enables analytics to be scaled from terabytes to petabytes, while still delivering answers in seconds.

### Time-to-Analysis:

Massively parallel loading of data directly into the database enables firms to rapidly pull in and integrate large volumes of data from multiple sources on an ongoing basis. Because PADB doesn’t require data to be manually indexed, or populated into pre-built cubes or materialized views, analysts spend less time waiting for new data, and more time on fine-tuning and executing their analyses. This also ensures that analytic systems are using the most current data from all sources to ensure that analyses provide the most accurate results that incorporate the latest market data.

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### Embedded Analytics:

PADB's extensible analytic platform moves advanced analytics to the data, rather than moving the data to the analytics. This minimizes the delays and potential security exposures related to copying and replicating data to multiple environments. This also eliminates the need to create, maintain, and sync data across multiple islands of analytics.

Furthermore, all analyses leverage the same set of detailed data, ensuring consistency between different parts of the firm. Because the advanced analytics reside directly in the database, and not in an external purpose-built platform, they can also be leveraged by a much larger group of analytic tools and users using standard tools and SQL queries. Analysts can also leverage all of the available data instead of a limited subset through PADB's highly scalable MPP-based platform rather than a traditional SMP-based approach.

### Analytic Integration:

The power of in-database analytics is augmented with the ability to use standard programming languages to create customized and flexible functions within the database. Any updates to the custom functions will be immediately available to all analyses that are subsequently run on PADB. This functionality can also be used to implement new data processing frameworks such as Map Reduce or R directly within PADB.

Custom connectors can also be built using this capability to connect to external sources of structured data (like Oracle, Teradata, etc.), as well as unstructured data (such as social media-related data located on an external Hadoop cluster). Data from a variety of sources can then be amalgamated and used in PADB for further sophisticated analysis.

### Flexible Deployment and Protection:

PADB's software-only approach enables companies to implement an enterprise analytic platform using the servers, storage, networking, and data management standards they have in place today.

Deployment configurations that include in-memory, SSD and direct-attached disk enable firms to select the class of storage that best meets their performance requirements. In addition, PADB's patent-pending SAN-based integration enables companies to use standard vendor/3rd-party tools for backups and recoveries, business continuity, and disaster recovery. To further protect sensitive data, column block-based encryption can be used to keep data safe from unauthorized access.

#### ABOUT PARACCEL, INC.

ParAccel, Inc. is the proven leader in high performance analytics. Our software-only platform provides the best scalability and price-performance for the widest variety of analytics, unlocking the most value from all available data for both Operational and Discovery workloads.

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