CASE STUDY
Intel® Xeon® Processors
Enterprise Server
High-Performing, Reliable, and Energy-Efficient Financial Reporting

Increasing financial analysis competitiveness with high-performing software technologies

Staying true to its commitment to bringing integrated, finance and risk solutions, FinArch created Financial Studio* (FinStudio*). FinStudio was deployed on NOVATTE's CloudBee* servers utilizing the Intel® Xeon® processor E5-2600 series, enhancing performance, I/O and energy efficiency in financial reporting

Financial Architects (FinArch) is a niche specialist and recognized global leader in fully integrated finance resource planning (FRP) solutions for the global finance industry. Founded in 1997, FinArch has built a strong reputation and market segment leadership that continues to demonstrate strong growth as a reliable partner for the finance industry. Through its FRP concept, FinArch aims to help financial services institutions (FSIs) streamline their core financial data processes while providing the flexibility to address immediate tactical demands. Its flagship product since the inception of the company is called FinStudio.

Headquartered in Ghent, Belgium, and with offices in major financial centers such as London, New York, Singapore, Bangkok, Madrid, Dubai and Luxembourg, FinArch's international teams serve more than 140 customers throughout Europe, the Americas and the Asia Pacific region. The company's notable list of clients includes Bank of New York Mellon, Euroclear, DNB, Bank Central Asia, EastWest Bank, ABN-AMRO, Royal Bank of Scotland, Commonwealth Bank of Australia, HSBC and Toronto Dominion Bank Financial Group.

CHALLENGES

- **Eliminate bottlenecks in compliance** transfers to increase the speed of data transfers, reducing the time spent for financial reports consolidation and compliance reporting.
- **Improve floating point instruction performance** for enhanced financial calculations.
- **Optimize data storage and system memory** through increased capacity while reducing power consumption.

SOLUTIONS

- **Deploy NOVATTE's CloudBee servers based on Intel® Xeon® processor E5-2600 series** to maximize compliance transfers.
- **Optimize floating point instruction performance** with Advanced Vector Extensions to double the number of floating point operations per clock cycle to improve financial calculations.
- **Innovate by introducing NOVATTE to Intel® Solid Sate Drive (Intel® SSD) caching technology**
  to bring CloudBee server's performance to its maximum while decreasing carbon footprint through the use of energy-efficient Intel enterprise-class SSD drivers and low-voltage DDR3 memory.
- **Increase price/performance ratio** to maximize economic efficiency on the hardware investment.

Introduction

The world of financial services faces a unique set of industry-specific challenges and requirements. Financial services institutions (FSIs) also need to meet international financial reporting standards (IFRS) and should have clear foresight that makes for sound risk management and compliance reporting. Optimizing compliance reporting is also essential to help them keep track of business risk and profitability, make critical business decisions and devise strategic business planning.

The inherent risks in dealing with complex financial instruments have resulted in continuously increasing information and reporting demands from both stakeholders and regulatory bodies. As financial institutions become more sophisticated and diverse, and with the advent of mobile and e-banking, transaction levels have increased. The problems of coping with this data overload are often compounded by reliance upon disparate legacy systems and silo solutions that fail to provide a consolidated and consistent enterprise-wide view of the organizations' performance and risks. Without a strategy to provide a consistent set of enterprise-wide finance and risk data, financial institutions may fail in meeting their reporting obligations and will simply not be in a position to cope with rapidly changing landscape of business requirements.

Recognizing these specific challenges faced by FSIs and the benefits achieved through the adoption of integrated enterprise resource planning (ERP) solutions in other industries, FinArch, a leading international software provider of integrated, finance and risk solutions, introduced the concept of finance resource planning (FRP). This solution aims to support the overall strategic ambitions of financial services organizations through an integrated approach to data and business processes management across the finance and risk functions.

Deploying NOVATTE's CloudBee servers running on Intel® Xeon® processor E5-2600 series has eliminated bottlenecks to improve data transfers while optimizing FinStudio's performance to meet time-critical compliance requirements

"The results of deploying NOVATTE's CloudBee servers powered by Intel Xeon processor E5-2600 series were really amazing! FinStudio processing reached a 300 percent increase in theoretical peak performance over the previous generation of Intel Xeon processor-based systems, which translates to 95 percent increase in physical peak performance. And because FinStudio's profiling was methodically done by NOVATTE, we were able to eliminate the bottlenecks without compromising the cost for our clients."

Jeff Tan
Vice President, Asia Pacific
FinArch

Performance challenges in an automated financial reporting system

To help financial services organizations streamline core financial data processes while providing the flexibility to address immediate tactical demands, FinArch developed Financial Studio (FinStudio). This is the first fully-integrated FRP solution for banking and financial institutions that automates compliance reporting.

Unlike generic ERP systems, this solution covers all operational and regulatory factors involved in the convergence of risk management and accounting practices across all banking and financial disciplines.

FinStudio delivers the benefits of the FRP concept by:

(1) Providing a single source platform that delivers data integrity and consistency;

(2) Allowing a shift towards value-adding data analysis as a result of the significant reduction in data reconciliation tasks; and

(3) Delivering multiple functional components based on the same underlying data set.

But FinArch wanted to continue developing the system and stretch its potential to provide its customers the fastest compliance reporting solution. To further stretch the performance of the compliance reporting system, FinStudio needed optimization to speed up the core financial data and compliance reporting process. FinArch knew that the best way to improve the solution's performance is to collaborate with a hardware provider that can seamlessly integrate software and hardware solutions; a partner who could scale and fine-tune hardware platforms using the most sophisticated technologies in the marketplace to achieve maximum performance and rapid delivery of the calculated results to the end user. To meet the company's standards for high performance and efficiency, FinArch collaborated with NOVATTE, a Singapore-based high performance computer manufacturer that delivers customized computing systems for the financial services industry, scientific researchers, software developers, HPC application users and cloud providers

High-performance, reliable and energy-efficient solution for time-sensitive compliance reporting

Most FSIs aim to reduce compliance processing time to less than four hours. This time pressure comes from the processing window, typically from midnight until before next business day, and is compounded with time zone issues for banks operating in multiple geographies. "FinArch recognizes the need for these FSIs to accelerate the process of compliance transfers. There is a need for a solution that will allow them to reduce the time it takes to accomplish data transfers and computation while ensuring they meet the IFRS requirements. To address this need, we worked with NOVATTE through deployment of its CloudBee servers powered by Intel Xeon processor E5-2600 series exclusively for FinArch," relates Jeff Tan, vice president for Asia Pacific, FinArch.

NOVATTE designed CloudBee servers using Intel Xeon processor E5-2600 series to achieve ultra-low latency, class-leading performance, high data throughput, system density, energy efficiency and reliability.

"The new Intel Xeon processor E5-2600 family delivers leadership performance, breakthrough I/O innovation and trusted hardware security features to enable IT to scale. Supporting up to eight cores per processor and up to 768GB of system memory, these new processors also support Intel® Integrated I/O, which reduces I/O bottlenecks and increases I/O bandwidth, benefiting I/O-intensive applications such as financial analysis," shares Paul Haines, director of Enterprise Solution Sales, Intel Asia Pacific.

NOVATTE first ran an 8-million-transaction performance test using an unmodified, standard hardware configuration while constantly observing FinStudio software performance and the resources used at each specific stage of a test run. Then, focusing on the system's unutilized resources, NOVATTE started to methodologically increase performance through targeted optimization of the free resources. When all free resources were utilized, NOVATTE identified the secondary fine-tuning optimization opportunities which became available through the innovative Intel technologies such as Intel SSD caching and data tiering, which allowed NOVATTE to dramatically increase OS and database performance, thus bringing FinStudio performance to its theoretical maximum. In the final run, both NOVATTE and FinArch were impressed with a record processing time for FinStudio which was just two hours and 20 minutes, a speedup of approximately 300 percent.

"This would not have been possible without Intel technologies that were used to build our CloudBee servers. Intel Xeon processor E5-2600 series has Intel® Advanced Vector Extensions (Intel® AVX) which double the floating point operations per clock cycle compared to the previous generation of CPUs and almost doubled the theoretical peak performance of the current CPU. We were also given preferential access to Intel's latest technology such as PCIe*-based SSD that allowed for the increase of I/O performance of a server to a great extent," explains Yury Drozdov, chief executive officer of NOVATTE.

Using NOVATTE's CloudBee servers that utilize Intel Xeon processor E5-2600 series allows FinStudio to deliver optimized financial computing performance for today's FSI organizations.

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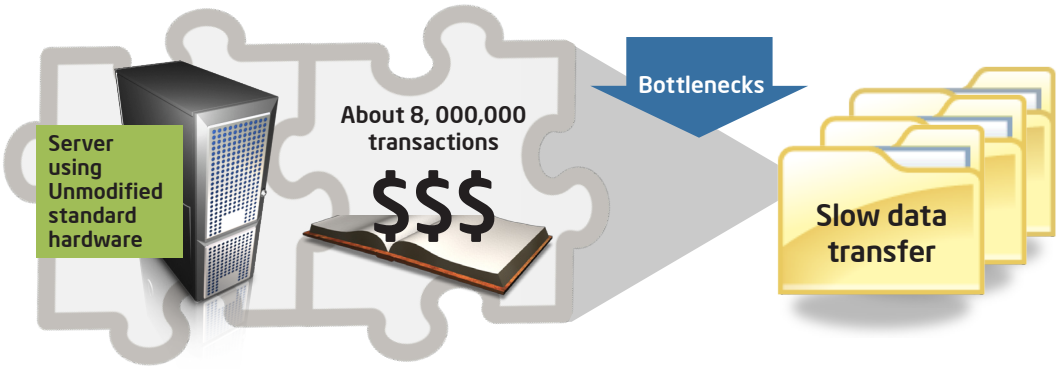
The collaboration between FinArch and NOVATTE has resulted in a ground-breaking compliance system with performance increases that made it possible to process month-end IFRS accounting calculations and postings on a portfolio of one million loans within 14.53 minutes and eight million in two hours and 20 minutes. This benchmark demonstrates FinStudio's ability to efficiently process extremely high volumes of data in a timely manner.

"It was extremely exciting and enjoyable to work closely with FinArch for this project. We are looking forward to continuing our collaboration with FinArch to bring FinStudio to greater heights with the latest Intel technologies," says Drozdov.

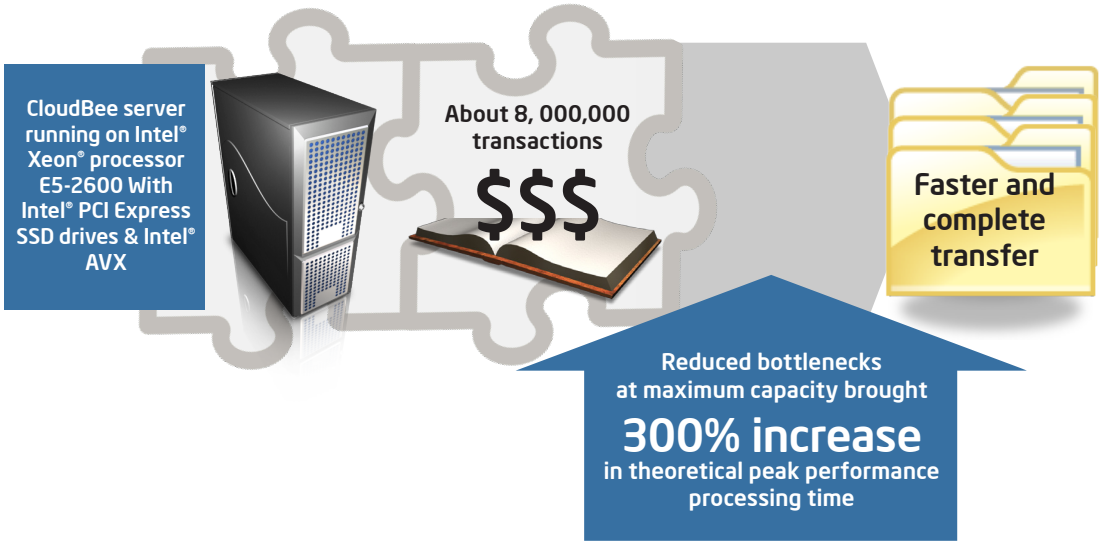
To learn more about FinStudio and CloudBee servers, please visit www.finarch.com or www.novatte.com or send an email to info@finarch.com or sls@novatte.com

Find a solution that's right for your organization. Contact your Intel representative, visit Intel's Business Success Stories for IT Managers (www.intel.com/itcasestudies) or explore the Intel.com IT Center (www.intel.com/itcenter).

FinStudio software before Intel-powered CloudBee servers



FinStudio software deployed with Intel-powered CloudBee servers



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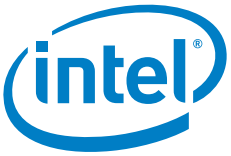

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