

Announcing IBM z16: Real-time AI for Transaction Processing at Scale and Industry's First Quantum-Safe System

- IBM z16 integrates the IBM Telum processor so clients can infuse AI inferencing for real-time insights
- IBM z16 is the industry's first quantum-safe system(1)



ARMONK, N.Y., April 5, 2022 /PRNewswire/ -- IBM (NYSE:IBM) today unveiled **IBM® z16™**, IBM's next-generation system with an integrated on-chip AI accelerator—delivering latency-optimized inferencing. This innovation is designed to enable clients to [analyze real-time transactions](#), at scale -- for mission-critical workloads such as credit card, healthcare and financial transactions. Building on IBM's history of [security](#) leadership, IBM z16 also is specifically designed to help protect against near-future threats that might be used to crack today's encryption technologies.

IBM innovations, including the IBM z16, have formed the technology backbone of the global economy for decades. Today's modern IBM mainframe is central to [hybrid cloud](#) environments, valued by two thirds of the Fortune 100, 45 of the world's top 50 banks, 8 of the top 10 insurers, 7 of the top 10 global retailers and 8 out of the top 10 telcos as a highly secured platform for running their most mission critical workloads. For example, according to a recent IBM commissioned study by Celent ["Operationalizing Fraud Prevention on IBM Z,"](#) IBM zSystems run 70% of global transactions, on a value basis²

"IBM is the gold standard for highly secured transaction processing. Now with IBM z16 innovations, our clients can increase decision velocity with inferencing right where their mission critical data lives," said Ric Lewis, SVP, IBM Systems. "This opens up tremendous opportunities to change the game in their respective industries so they will be positioned to deliver better customer experiences and more powerful business outcomes.

Real-time enterprise AI to revolutionize industries with new use cases and applications

Financial institutions worldwide struggle with the impacts of fraudulent activities on their revenues and consumer interactions. According to a new study from IBM and Morning Consult "[2022 IBM Global Financial Fraud Impact Report](#)," credit card fraud is the most common type of fraud among consumers in the seven countries surveyed. Furthermore, respondents said they believe that banks and payment networks should be most responsible for preventing fraud. But running deep-learning models at scale in real-time has not been possible due to latency issues, meaning fraud detections models are only run on less than 10% of high-volume transactions – a significant amount of fraud is going undetected.

IBM z16 uniquely brings together AI inferencing, via its [IBM Telum Processor](#), with the highly secured and reliable high-volume transaction processing IBM is known for. For the first time, banks can analyze for fraud during transactions on a massive scale: IBM z16 can process 300 billion inference requests per day with just one millisecond of latency³. For consumers, this could mean reducing the time and energy required to handle fraudulent transactions on their credit card. For both merchants and card issuers, this could mean a reduction in revenue loss as consumers could avoid frustration associated with false declines where they might turn to other cards for future transactions.

Other threats including tax fraud and organized retail theft are emerging as challenges for governments and businesses to control. Real-time payments and alternative payment methods like cryptocurrencies are pushing the limits on traditional fraud detection techniques. Applying the new capabilities of IBM z16 to other industries can help create an entirely new class of use cases, including:

- Loan approval: to speed up approval of business or consumer loans
- Clearing and settlement: to determine which trades and/or transactions may have a high-risk exposure before settlement
- Federated learning for retail: to better model risk against fraud and theft

Securing data with the industry's first quantum-safe system

In a hybrid cloud environment inclusive of on-premises and public cloud resources, it is critical to protect against today's threats and posture against cyber criminals who may be stealing data now for decryption later. Building on IBM technologies like

Pervasive Encryption and Confidential Computing, IBM z16 takes cyber [resiliency](#) a leap further by protecting data against future threats that could evolve with advances in quantum computing.

As the industry's first quantum-safe system⁴, IBM z16 is underpinned by lattice-based cryptography, an approach for constructing security primitives that helps protect data and systems against current and future threats. With IBM z16 quantum-safe cryptography, businesses can future-ready their applications and data today.

With secure boot (meaning that bad actors cannot inject malware into the boot process to take over the system during startup), IBM z16 clients can strengthen their cyber resiliency posture and retain control of their system. Also, with the Crypto Express 8S (CEX8S) hardware security module will offer clients both classical and quantum-safe cryptographic technology to help address their use cases requiring information confidentiality, integrity and non-repudiation. IBM z16's secure boot and quantum-safe cryptography can help clients address future quantum-computing related threats including harvest now, decrypt later attacks which can lead to extortion, loss of intellectual property and disclosure of other sensitive data.

Modernizing for hybrid cloud

IBM has spent the last three years making significant investments in service of our commitment to embrace open-source technology on the IBM zSystems platform and establishing a common developer experience across the hybrid cloud. These solutions are designed to help our clients leverage their investments in — and the strengths of — their existing IT infrastructure, clouds and applications in a seamless way, while giving them the flexibility to run, build, manage and modernize cloud native workloads on their choice of architecture.

Recent announcements as part of this effort include:

- **IBM Z and Cloud Modernization Stack** to help clients increase agility and accelerate their transformation including support for popular open-source projects.
- **IBM Z and Cloud Modernization Center**: a digital front door to a vast array of tools, training, resources, ecosystem partners and industry-specific expertise from IBM Consulting to help IBM zSystems clients accelerate the modernization of their applications, data and processes in an open hybrid cloud architecture.
- **Tailored Fit Pricing**: a full-stack approach to enable our clients to quickly respond to changes in dynamic workloads and needs of the business with cloud-like pricing.
- **Bringing Anaconda to Linux on Z**: one example of bringing popular data science frameworks and libraries to these enterprise platforms, providing a consistent data science user experience across the [hybrid cloud](#).
- **Streamlined Support**: IBM Technology Support Services offers IBM z16 clients turnkey support to help predict and prevent unplanned disruption, and technical services that accelerate how businesses take advantage of the opportunity hybrid technology environments present.

With IBM z16, IBM used a highly collaborative, client-centered approach that deeply engaged hundreds of individuals from more than 70 clients, a practice that is already underway for future IBM mainframe systems. IBM z16 will be generally available on May 31, 2022. For more information, please visit [Ross Mauri's blog](#).

About IBM

IBM is a leading global hybrid cloud and AI, and business services provider, helping clients in more than 175 countries capitalize on insights from their data, streamline business processes, reduce costs and gain the competitive edge in their industries. Nearly 3,800 government and corporate entities in critical infrastructure areas such as financial services,

telecommunications and healthcare rely on IBM's hybrid cloud platform and Red Hat OpenShift to affect their digital transformations quickly, efficiently, and securely. IBM's breakthrough innovations in AI, quantum computing, industry-specific cloud solutions and business services deliver open and flexible options to our clients. All of this is backed by IBM's legendary commitment to trust, transparency, responsibility, inclusivity, and service. For more information, visit www.ibm.com

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¹ Disclaimer: Cited by a third party analyst. IBM z16 with the Crypto Express 8S card provides quantum-safe APIs providing access to quantum-safe algorithms which have been selected as finalists during the PQC standardization process conducted by NIST. <https://csrc.nist.gov/Projects/post-quantum-cryptography/round-3-submissions>. Quantum-safe cryptography refers to efforts to identify algorithms that are resistant to attacks by both classical and quantum computers, to keep information assets secure even after a large-scale quantum computer has been built. Source: <https://www.etsi.org/technologies/quantum-safe-cryptography>. These algorithms are used to help ensure the integrity of a number of the firmware and boot processes. IBM z16 is the Industry-first system protected by quantum-safe technology across multiple layers of firmware.

² "Operationalizing Fraud Prevention on IBM Z," an IBM commissioned report by Celent. March 2022.

³ Disclaimer: Performance result is extrapolated from IBM internal tests running local inference operations in a z16 LPAR with 48 IFLs and 128 GB memory on Ubuntu 20.04 (SMT mode) using a synthetic credit card fraud detection model (<https://github.com/IBM/ai-on-z-fraud-detection>) exploiting the Integrated Accelerator for AI. The benchmark was running with 8 parallel threads each pinned to the first core of a different chip. The lscpu command was used to identify the core-chip topology. A batch size of 128 inference operations was used. Results may vary.

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