

World's Largest Green Data Center

Collaborative expertise delivers performance, compliance, and sustainability.

At a glance

- Businesses looking to embrace the myriad opportunities arising within Dubai's thriving and fast-growing digital economy need a suitable data center.
- The most optimal data center solution meets today's organizational demands for sustainability, data sovereignty, and cybersecurity while delivering high performance optimized for Industry 4.0 (4IR) technologies like AI and driving ambitious projects like Smart Cities.
- Moro Hub, a Digital Dubai Electricity and Water Authority (DEWA) company, established its Green Data Center, powered by Intel® technology, to meet this multi-pronged demand. This data center has become an especially popular choice for hyperscalers and Tier 1 cloud players.

Within the global data center market, the Middle East stands out as one of the fastest growing, buoyed by rapid progress in the United Arab Emirates (UAE), which is home to the region's largest concentration of data centers.¹ Dubai is one of the UAE's key players; the city has used government support and technological innovation to establish itself as a leading global hub for the digital economy.

Dubai's thriving digital economy presents huge opportunities for businesses with growing technology needs around AI, Internet of Things (IoT), and more. Local and global enterprises operating within the city can easily meet these needs to take their operations to the next level—but can they simultaneously reach sustainability targets and adhere to data-compliance regulations?

In recent years, local and international enterprises have increasingly been drawn to Dubai's expanding digital ecosystem. This growth is driven by the city's robust AI-led data center economy, highlighting Dubai's leadership in 4IR technologies, which integrate AI, robotics, IoT, and biotechnology to transform industries. Demonstrating this commitment, Dubai recently launched its Universal Blueprint for Artificial Intelligence to further AI applications. Additionally, Dubai's government actively fosters a supportive, future-ready environment, enhancing its appeal to digitally transformed businesses.

Challenge

There is a business imperative to prioritize sustainable operations, but data processing can make this challenging as it is power-intensive. Green data centers, where the facility is powered by clean energy sources, offer a solution. However, businesses using such a solution must ensure it's built for enterprise-level workloads. The ideal green data center must meet the need for scalable, sustainable operations without sacrificing performance.

Also, data sovereignty—how data must be governed by regulations of the country within which it's located—can be challenging to navigate in the UAE.³ The complexity means businesses joining economies like Dubai usually look for local data center providers. Such providers can streamline compliance efforts by offering 'data-residency-as-a-service' solutions.

"A robust, reliable, and sustainable data center economy rooted in emerging technologies is crucial to Dubai's successful digital transformation. It will also contribute to the Dubai Economic Agenda D33, to raise the productivity of our economy by 50% through digital innovation."²

— Mohammad Bin Sulaiman,
Chief Executive Officer, Moro Hub

Solution

Businesses need a certified, trusted local service provider offering a data center that is scalable, sustainable, data-residency-ready, and, of course, secure. It's a tall order, but one that has been achieved by pooling expertise. The result is the Moro Hub Green Data Center, powered by Intel's family of Intel® Xeon® Scalable processors. The data center promotes sustainable operations, incorporates advanced technology like AI, and offers layered security features and data sovereignty.

Results

Guinness World Record holder⁴. Moro Hub is the largest solar-powered data center at 33,311.11m² (roughly the size of six American football fields).

Trusted by local authorities. Dubai Electronic Security Center certification signals Moro Hub's cloud-service compliance with Dubai's data sovereignty requirements.

Top sustainability credentials. Moro Hub is certified as Tier-III Gold Operations⁵ and Design⁶ by Uptime Institute, and LEED Gold Certified by US Green Building Council.⁷

Lower carbon footprint. About 10,500 fewer tons of CO₂ are emitted every year⁸, which equates to the amount absorbed by 326,000 trees.

Solution Details

Powered by Intel technology, the Moro Hub solution offers your business the chance to tap into the transformative power of a secure, sustainable, and innovative data center and cloud service that aligns with your organization's strategic goals while meeting governments' compliance requirements.

The Moro Hub offers AI-optimized performance thanks to the Intel® Deep Learning Boost feature of Intel Xeon Scalable processors. This feature delivers accelerated performance to inference workloads, without the need for a discrete add-on accelerator. AI workloads can deal with a greater number of requests in a shorter amount of time, speeding up their time to output. This translates into a lower total cost of ownership (TCO)⁹ for the business running the AI.

Other benefits of the Intel Xeon Scalable Processor family include:

Built for greater energy efficiency and lower TCO. Intel Xeon processors dynamically self-provision resources—on-premises, through the network, and in the public cloud—based on workload needs. This delivers highly efficient service delivery and operational streamlining, both leading to improved TCO¹⁰ and higher productivity for users.

Lower latency with local service. The distance between the data center and business user is important from a speed of service standpoint. Having a local data center means Dubai-based businesses will have reduced latency; the shorter data pathway delivers improved performance for their digital services. In fact, one report¹¹ pointed out that, with most of Dubai's data remaining local (a result of data residency regulations), latency has dropped substantially, "from 200 milliseconds in 2012 to less than 3 milliseconds in 2022."

The Intel Xeon Scalable Platform offers businesses:

- Improved total cost of ownership (TCO) due to lower software and OS licensing fees, and lower acquisition, maintenance, and infrastructure costs.
- Strengthened sustainability support with features like the Intel® Node Manager 4.0. This feature helps IT intelligently manage and optimize power, cooling, and compute resources in the data center.
- Consistently strong performance for diverse workloads with foundational enhancements such as the Intel® Ultra Path Interconnect ensuring improved throughput is balanced with energy efficiency.

The Moro Hub's capacity and strength will continue to grow as it enters upcoming expansion phases. In such expansions, customers are likely to benefit from the latest iteration of processors—such as the powerful Intel® Xeon® 6 processor family, which a Prowess technical research survey¹² applauded for its unparalleled flexibility in support of a "broad spectrum of workloads, from AI and high-performance computing (HPC) to cloud-native applications, with optimal efficiency."

Intel Xeon 6 processors reduce the cost of cloud computing, delivering higher efficiency and performance¹³ compared to previous-generation Intel Xeon Scalable processors. For example, compared with the 2nd Gen Intel Xeon Scalable Processor family, they offer up to 3x higher rack density and up to 2.7x better performance per watt.¹⁴ When compared with 5th Gen processors, average gains made using Intel Xeon 6 processors include 1.2x higher performance per core and 1.6x higher performance per watt¹⁵—resulting in 30% lower average TCO for similar performance levels.¹⁶ These are the kinds of benefits that Intel wants to pass on to all data center customers.

Whether you're a global hyperscaler or a regional business, using Moro Hub's Green Data Center, powered by Intel technology, will strengthen your digital transformation efforts by:

- Enabling your organization to access carbon-free computing, thereby allowing you to meet sustainability goals to reduce your carbon footprint.
- Helping your organization operate in compliance with Dubai's local data regulations.
- Driving high performance of data-driven 4IR technologies like AI, IoT, cloud and more to help you run daily operations and break the mold with innovative applications that set your business apart.

The ongoing collaboration between Intel and Moro Hub is committed to delivering a future-proofed sustainable solution. This will keep your business at the cutting edge of what's possible in powerful but efficient operations.

"Strong collaborations in the application of our technology with like-minded partners such as Moro Hub have helped us move the needle on sustainable action that tackles climate change. At Intel, we're committed to advancing carbon-neutral computing, which is why we're excited to be part of the next-generation of solar-powered data centers capable of supporting new-tech demands of modern enterprises."

— Madison West,
senior director of corporate responsibility at Intel

How Moro Hub Promotes Sustainable Operations

What makes Moro Hub's Green Data Center, powered by Intel technology, a preferred option for sustainability-focused businesses and government entities alike?

Large capacity underpinned by clean energy sources. The data center is 100% powered by renewable energy produced by the Mohammed bin Rashid Al Maktoum solar park, with a capacity exceeding 100 megawatts (MW).

Tangible environmental, social, and governance (ESG) impact. Moro Hub can measure the carbon footprint savings made by customers running workloads in the green data center. To signify this saving, Moro Hub issues customers green certificates as a tangible value-add that can be useful for ESG reporting.

Circular economy contributor to advance government's targets. The Dubai Clean Energy Strategy aims to achieve a 75% clean-energy mix for the city by 2050¹⁷, with solar power playing a vital role in simultaneously advancing this goal while driving technological progress. The Moro Hub is one of the best examples of how this goal is actioned. Thanks to the Moro Hub, ~10,500 fewer tons of CO₂ are emitted every year¹⁸, also bringing Dubai closer to its Carbon Abatement Strategy to see a 30% reduction by 2030 on the path toward net zero. Additionally, the data center aligns with Dubai's Net Zero Emissions Strategy to have the city's energy completely powered by clean sources by 2050—solar power (from suppliers like the solar park where Moro Hub is located) already accounts for 2,027 MW¹⁹ of the emirate's total power production capacity of 14,517 MW.

Layered security features for better protection. Trust, safety, security, and privacy are foundational pillars for this data center. As such, Moro Hub's architecture comprises eight levels of security, leveraging 15 integrated security systems, and advanced security surveillance to strengthen cybersecurity of customer data it houses. Added to this is the built-in enhanced hardware security of Intel Xeon Scalable Processors, such as Intel® Software Guard Extensions (Intel® SGX) – designed to protect the system and your data.

Deep-rooted commitments to sustainability at the company level. Moro Hub's commitment to protect and preserve the environment is aligned with Intel's organization-wide sustainability focus. The Green Data Center represents one of several collaborations that Intel has pursued to advance carbon-neutral computing. Renewable energy is also a key point of alignment for both companies: for Intel's part, it already uses 99% renewable electricity across its global operations at last measure in 2023²⁰.

Learn More

For more information, email reach@morohub.com.

Solution Ingredients

- [Intel® Xeon® Scalable processors with Intel® Deep Learning Boost](#)
- Intel Node Manager
- [Intel® Software Guard Extensions](#)



¹ Knight Frank (2023) Data Centres: The MENA Report. Available from: <https://content.knightfrank.com/research/2788/documents/en/data-centres-the-mena-report-q3-2023-10794.pdf> [Accessed 8 January 2025].

² Government of Dubai (October 2024) DET and Network International to boost Dubai's digital economy and support SMEs. Available from: <https://www.dubaidet.gov.ae/en/newsroom/press-releases/detnetwork-international-agreement> [Accessed 8 January 2025].

³ InCountry (2022) Data protection laws in the UAE: ways to comply. Available from: <https://incountry.com/blog/data-protection-laws-in-the-uae-ways-to-comply/> [Accessed 8 January 2025].

⁴ Guinness World Records (January 2025) Largest solar-powered data centre. Available from: <https://www.guinnessworldrecords.com/world-records/713557-largest-solar-powered-data-center> [Accessed 8 January 2025].

⁵ Uptime Institute (September 2023) Facebook post announcement. Available from https://www.facebook.com/photo.php?fbid=815075433954642&id=100063565781223&set=a.536826431779545&locale=nb_NO [Accessed 20 February 2025].

⁶ Uptime Institute (October 2024) LinkedIn post announcement. Available from https://www.linkedin.com/posts/uptime-institute_tieriii-tier-tierstandards-activity-7242570669786365952-wfo9 [Accessed 20 February 2025].

⁷ U.S. Green Building Council (February 2024) MORO 2.0 MBR Solar Park Data Center. Available from <https://www.usgbc.org/projects/moro-20-mbr-solar-park-data-center> [Accessed 20 February 2025].

⁸ Moro Hub (2023) Moro Hub Green Data Center. Available from: <https://www.youtube.com/watch?v=UdVTIzTsNnA> [Accessed 8 January 2025].

⁹ Intel Corporation (n.d.). Performance Index: Intel® Xeon® 6. Available from: <https://edc.intel.com/content/www/us/en/products/performance/benchmarks/intel-xeon-6/> [Accessed 25 February 2025].

¹⁰ Ibid (Intel Corp.).

¹¹ Knight Frank (n.d.) MENA Region Data Centre Market Report. Available from: <https://content.knightfrank.com/resources/knightfrank.ae/data-centres/mena-region-data-centre-market-report.pdf> [Accessed 8 January 2025].

¹² Prowess Consulting (May 2024) Technical Research Study: Enhancing Data Center Performance and Efficiency: Intel® Xeon® 6 Processor Family Insights. Available from: <https://prowessconsulting.com/resources/intel-enhancing-data-center-performance-and-efficiency-intel-xeon-6-technical-research-study/> [Accessed 8 January 2025].

¹³ Ibid (Prowess Consulting).

¹⁴ Intel Corporation (n.d.). Performance Index: Intel® Xeon® 6. See [7T1] at <https://edc.intel.com/content/www/us/en/products/performance/benchmarks/intel-xeon-6/> [Accessed 14 March 2025].

¹⁵ Intel Corporation (n.d.). Performance Index: Intel® Xeon® 6. See [9G4] at <https://edc.intel.com/content/www/us/en/products/performance/benchmarks/intel-xeon-6/> [Accessed 14 March 2025].

¹⁶ Intel Corporation (n.d.). Performance Index: Intel® Xeon® 6. See [9T2] at <https://edc.intel.com/content/www/us/en/products/performance/benchmarks/intel-xeon-6/> [Accessed 14 March 2025].

¹⁷ The United Arab Emirates' Government Portal (May 2024) Dubai Clean Energy Strategy. Available from: <https://u.ae/en/about-the-uae/strategies-initiatives-and-awards/strategies-plans-and-visions/environment-and-energy/dubai-clean-energy-strategy> [Accessed 8 January 2025].

¹⁸ Moro Hub (2023) Moro Hub Green Data Center. Available from: <https://www.youtube.com/watch?v=UdVTIzTsNnA> [Accessed 8 January 2025].

¹⁹ Fast Company (February 2023) 14% of Dubai's total capacity for power production comprises of clean energy. Available from: <https://fastcompany.com/news/14-of-dubais-total-capacity-for-powerproduction-comprises-of-clean-energy/> [Accessed 8 January 2025].

²⁰ Intel (2024) 2023-24 Corporate Responsibility Report. Available from: <https://csrreportbuilder.intel.com/pdfbuilder/pdfs/CSR-2023-24-Full-Report.pdf> [Accessed 8 January 2025].

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