UCODE X: Flexible EPC memory enables supply chain brilliance

UCODE X is well known in the RAIN RFID market for its outstanding read and write performance and GS1 standards compliance. A key differentiator is its flexible EPC memory configuration, offering up to 208 bits of EPC memory.

With six configurable memory layouts, UCODE X offers exceptional flexibility, allowing a single chip to support a wide range of RAIN RFID applications.

Why on-chip space matters more than ever

In dynamic industries such as food, pharma, retail general merchandise, and apparel, there is growing demand to track not only products, but also product-related information. Data such as lot numbers, expiration dates, production location, and other application-specific attributes can help improve traceability, operational efficiency, and supply chain visibility.

As data requirements continue to grow, so does the need for greater EPC memory capacity. UCODE X is designed to meet that challenge.

Operation Brilliance demonstrates the value of extended EPC memory

Building on GS1 Tag Data Standard TDS 2.3, Operation Brilliance demonstrates how extended EPC memory can enable new approaches to supply chain visibility and data sharing.

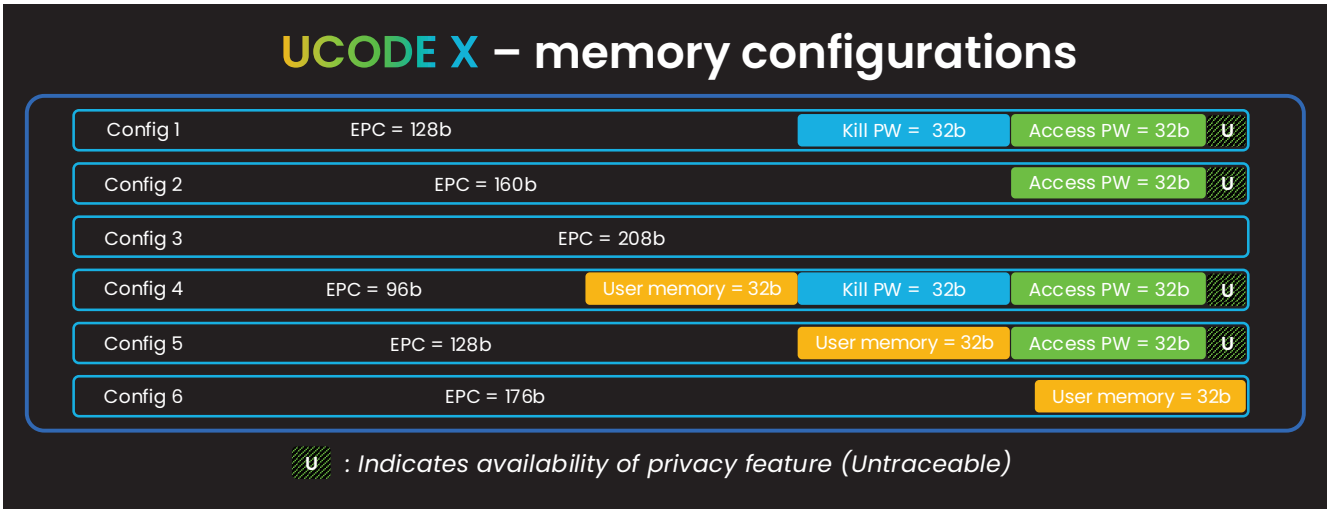
As part of the initiative, an eight-week pilot tracking Gildan Activewear apparel shipments to Walmart showcased the concept in a real-world supply chain environment.

Additional EPC memory enables storage of a GS1 Digital Link alongside the standard EPC, providing access to a shared data space containing product information and supply chain events. This allows participants across the value chain to access and contribute relevant data using a common framework.

By creating a shared source of supply chain information, Operation Brilliance brings light into areas that were black boxes before.

UCODE X: One product, six configurations

With UCODE X, users can select from six memory configurations, trading capacity between EPC memory, user memory, and features.



Note: Protocol Control (PC) word must be set accordingly.

Field reconfigurable using standard commands

With UCODE X, reconfiguring is possible with standard tools. RFID label suppliers, solution providers, and even end customers can switch a tag's configuration using standard GS1 commands and any standards-compliant reader.

As RFID applications continue to evolve, tags capable of supporting richer data can open new opportunities. UCODE X is ready for that future today, with the EPC capacity and flexibility to match what comes next.

Want to know more about UCODE X? Contact your local NXP sales representative, visit nxp.com/UCODEX, or read one of the application notes to learn more about UCODE X.

- UCODE X memory configuration setup for Zebra Printers with BarTender[AN15115]
- UCODE X memory configuration setup for Zebra Printers with Nicelabel/Loftware[AN15035]
- UCODE X memory configuration setup for TSC Auto ID Printers with BarTender[AN15114]
- UCODE X memory configuration setup for Printronix Printer with Nicelabel/Loftware[AN14769]

nxp.com/UCODEX

NXP and the NXP logo are trademarks of NXP B.V. All other product or service names are the property of their respective owners. © 2026 NXP B.V.

Document Number: UCODEXEPCFSA4 REV 1