

Weebit ReRAM IP in DB HiTek 130nm BCD

Product Brief



Innovative Non-Volatile Memory IP for Mixed-Signal & Power Management Applications

Overview

Weebit ReRAM (Resistive Random Access Memory) is an innovative Non-Volatile Memory (NVM) technology that can be easily integrated into any CMOS IC. It is a high-performance and very low-power NVM, achieving 10K programming cycles and 10 years' retention at high temperatures.

The technology is available in DB HiTek 130nm BCD process, tested on silicon, and ready for integration in user SoCs.

The Weebit ReRAM IP module is provided in a wide range of features and can be customized per customers' needs. The Weebit ReRAM module is provided as a Hard Macro that can be easily integrated into any SoC.

Target Applications

Weebit ReRAM IP for the DB HiTek 130nm BCD process can provide advantages for a broad range of applications, including:

- ✓ Analog, power management, mixed-signal designs
- ✓ IoT, industrial, automotive
- ✓ Radiation-tolerant designs
- ✓ Heterogeneous computing
- ✓ Data logging applications

The use of the Weebit ReRAM module in DB HiTek 130nm BCD is especially beneficial for intelligent high-voltage applications that require the integration of a microcontroller, such as wireless charging, motor control, and smart battery management systems.

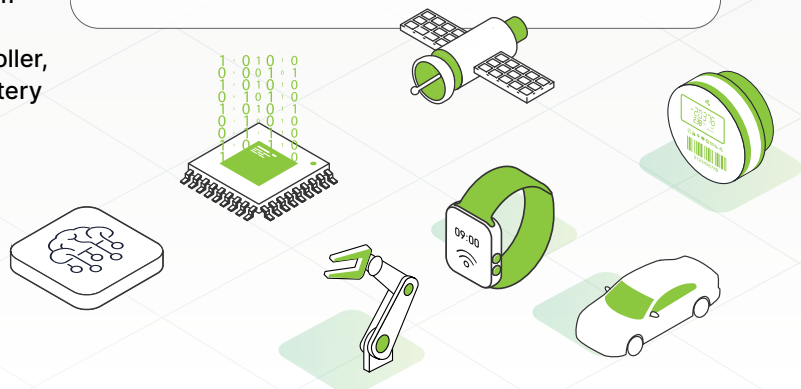
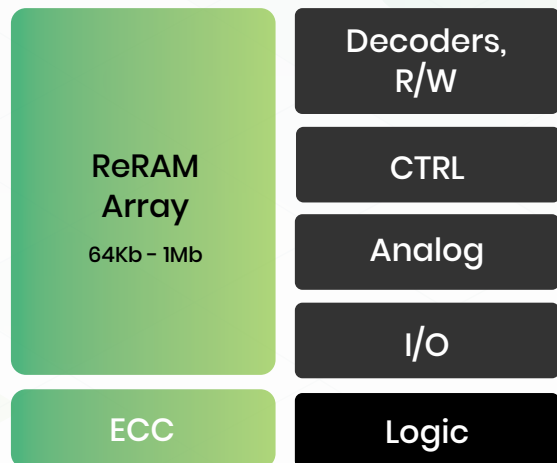
The Weebit ReRAM module is typically used for:

- ✓ Firmware (code storage)
- ✓ Data logging
- ✓ Calibration and trimming
- ✓ Configuration bits

Weebit ReRAM NVM in DB HiTek 130nm BCD

- ✓ Availability: Ready for production
- ✓ Maturity: Silicon proven, qualified
- ✓ Density: 64Kb - 1Mb
- ✓ Industrial qualification: 10K cycles, 10 years @125°C

Weebit ReRAM Module



Key Benefits

- ✓ Low-cost NVM – Requires only 2 additional masks
- ✓ Ultra-low power consumption
- ✓ Excellent endurance and retention even at high temperatures
- ✓ Back-end-of-line (BEOL) technology for integration flexibility
- ✓ Inherently secure technology
- ✓ Tolerant to ionizing radiation and electromagnetic interference

Deliverables

All standard IP deliverables include:

- ✓ Verilog model
- ✓ LEF
- ✓ CDL
- ✓ Integration guide
- ✓ Data sheet
- ✓ Timing constraints
- ✓ Memory map

Features Specifications

| Technology | DB HiTek 130nm BCD |
|--------------------------|--|
| Mask Adder | 2 |
| Supply Voltage | 1.5V+/- 10% Read, 3.3V+/- 10% Program |
| Read Access Time | <25nsec |
| Operation Temperature | -40°C to 125°C |
| Capacity | 1024 Kbit (1Mb) / 512Kb / 256Kb / 128Kb / 64Kb |
| Data Bus Width (Read) | 32-bit (can be customized to 16-bit, 32-bit, 64-bit, 128-bit) |
| System Interface | AHB (can be customized QSPI or other) |
| Endurance (Write Cycles) | 10K (can be extended to 100K) |
| Data Retention | >10 years @125°C |
| XiP (eXecute in Place) | Special bus interface to enable firmware execution directly from the ReRAM |
| OTP | Configurable ReRAM sector for trimming and configuration bits |

Getting Started

Weebit ReRAM IP is delivered as an embedded module with a complete set of collateral and EDA views to enable smooth integration by SoC architects using state-of-the-art EDA tools.

DB 130nm BCDMOS Process

Based in Korea, DB HiTek is a specialized foundry with leading analog and power semiconductor technology. Its technologies run in high volume and at world-class quality levels, as demonstrated by the company's numerous quality-driven certifications. The company's 130nm (0.13µm) BCDMOS (Bipolar CMOS-DMOS) process is optimized to increase power efficiency and low-power performance for analog, mixed-signal, and power management designs. DB HiTek's 130nm technology node supports up to 120V BCDMOS in addition to CMOS 1.5V and 5V devices. It supports up to six aluminum metal layers and is mixed-signal enabled. It offers a variety of CMOS thresholds to optimize for power and performance.

ABOUT WEBBIT NANO



Weebit Nano Ltd. is a leading developer and licensor of advanced semiconductor memory technology. The company's ground-breaking Resistive RAM (ReRAM) addresses the growing need for significantly higher performance and lower power memory solutions in advanced system-on-chip (SoC) designs for applications such as AI inference, automotive electronics, industrial systems, analog and power ICs, and secure devices.