

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 for CMOS integrated circuits (ICs).

It delivers high-performance and ultra-low-power operation, achieving 10K programming cycles and 10 years' data retention at high temperatures.

The technology is available on the DB HiTek 130nm BCD process, has been proven in silicon, and is ready for customer deployment.

The Weebit ReRAM IP module is delivered as a silicon-proven hard macro with flexible configuration options, enabling straightforward integration into SoC and mixed-signal designs.

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 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.

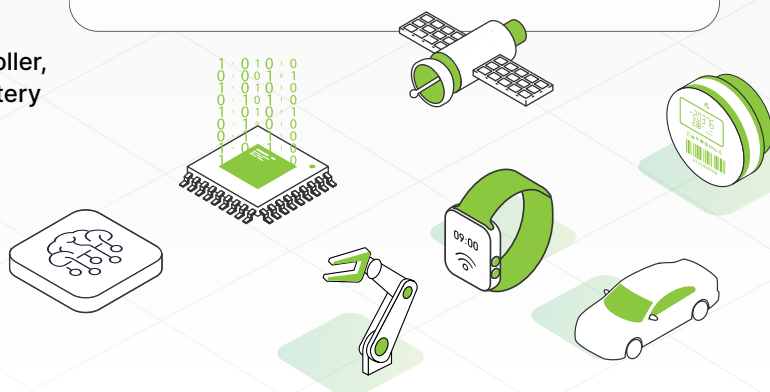
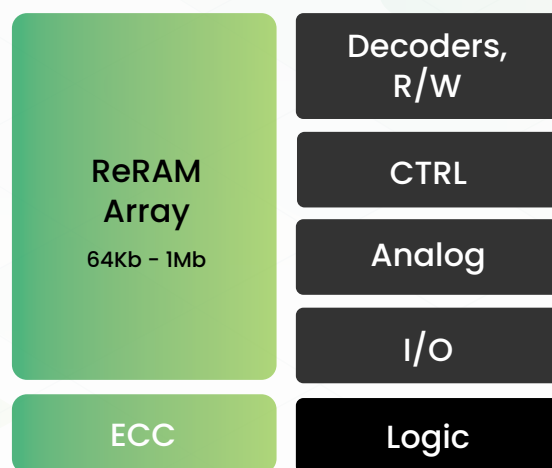
The Weebit ReRAM module is typically used for:

- ✓ 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.

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 WEEBIT NANO



Weebit Nano 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.

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