Consumer Electronics

The right embedded database cuts manufacturing costs, builds in reliability and boosts the end-user experience.

Overview

In the race to offer advanced features, consumer electronics devices manage ever-growing volumes of increasingly complex data. MP3 players organize tracks via meta-data and user input such as playlists and ratings. Embedded gaming software demands concurrent data access, event notification and fast, flexible search. Set-top boxes offer a rich store of programming choices. Even cell phones must organize messages—often in multiple formats— logically, and retrieve them quickly. Device features must respond instantly to deliver a snappy end-user experience.

Consumer electronics manufacturers rely on McObject's *eXtreme*DB Fusion hybrid in-memory/on-disk embedded database system to meet the stringent performance, reliability and form factor demands, as well as the RAM and CPU limits, of new smart devices. *eXtreme*DB Fusion offers stability, scalability and extensibility proven in years of deployment. Its streamlined architecture— designed from scratch for embedded apps—makes for a code size as small as 50K. This tiny footprint enables use of less memory and lower-end processors, for manufacturing cost savings that drop to the bottom line.

Uniquely, *eXtreme*DB Fusion is optimized for in-memory and on-disk data storage in a single embedded database system, providing unparalleled flexibility. In-memory data management excels at real-time performance. Yet byte-for-byte, disk storage can be cheaper than memory. Disk storage can also take less physical space. So for small form-factor devices with large storage needs, such "spinning memory" might be preferred.

*eXtreme*DB Fusion Features and Benefits

- **Lower costs** – Streamlined architecture enables striking efficiency gains, leading to lower component (RAM and CPU) costs.
- **Hybrid data management** – *eXtreme*DB Fusion combines in-memory and on-disk data storage in one embedded database system, to optimize applications for speed, persistence, cost and form factor.
- **Better, safer code** – Type-safe, intuitive C/C++ API shortens database learning curve, produces more easily maintained code, and eliminates costly run-time errors.
- **Concurrent access** – Databases can be created in local or shared memory. Multiple processes or threads can share databases; a remote interface allows network access.
- **Industry-tested solution** – Siemens, Phillips, JVC, Genesis Microchip and other electronics leaders embed McObject's database in their consumer devices.

Technical Specs

- Code size from 50K to 250K, depending on the platform and features.
- Source code and object code licenses are available.
- Transaction performance measured in microseconds.
- In-memory and on-disk data storage co-exist within *eXtreme*DB Fusion database instances, via simple database schema declarations.
- Other persistence options include streaming in-memory data to disk, non-volatile RAM (NV-RAM) support, Transaction Logging and High Availability editions.
- Provides general purpose and specialized indexes – including B-tree, R-tree, T-tree, Patricia trie, hash table and custom indexes – plus varied data types and sophisticated debugging features.

Application areas:

Set-top boxes; mobile phone handsets; digital media players; gaming devices and consoles; digital cameras; digital video recorders; GPSs; Internet and VoIP phones; home media servers; PDAs and handheld computers; robots; gateways, servers and wireless access points.

Architectures supported:

32-bit, 64-bit, ARM, DSP, Embedded Intel® (Pentium, Embedded Intel® Architecture etc.), Freescale (Coldfire, MCORE, HC08 etc), MIPS, Power Architecture™ (including PowerPC), x86, XScale

Operating systems supported:

VxWorks, QNX Neutrino, Linux and embedded Linux distributions (Wind River, MontaVista, LynuxWorks etc.), Windows Embedded, Mentor Graphics/Nucleus, Integrity, eCos, LynxOS, RTXC Quadros, uCLinux, µC/OS-II, Bare bones boards (no operating system required)