

TOSHIBA

The Toshiba logo is positioned at the top left. A thick horizontal bar extends from the right side of the logo, transitioning from grey to red.

Microcontrollers

Toshiba Microcontrollers for Audio Applications

~ Functions and Features ~

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**TOSHIBA CORPORATION
Semiconductor Company**

Toshiba Microcontrollers for Audio Applications

Toshiba offers a wide variety of microcontrollers for audio applications to meet various needs of customers.



900/H1 Series for System Control

- High-speed CPU core
- Large-capacity memory
- Instruction-compatible among the 900 Family

870/C Series for Display Control

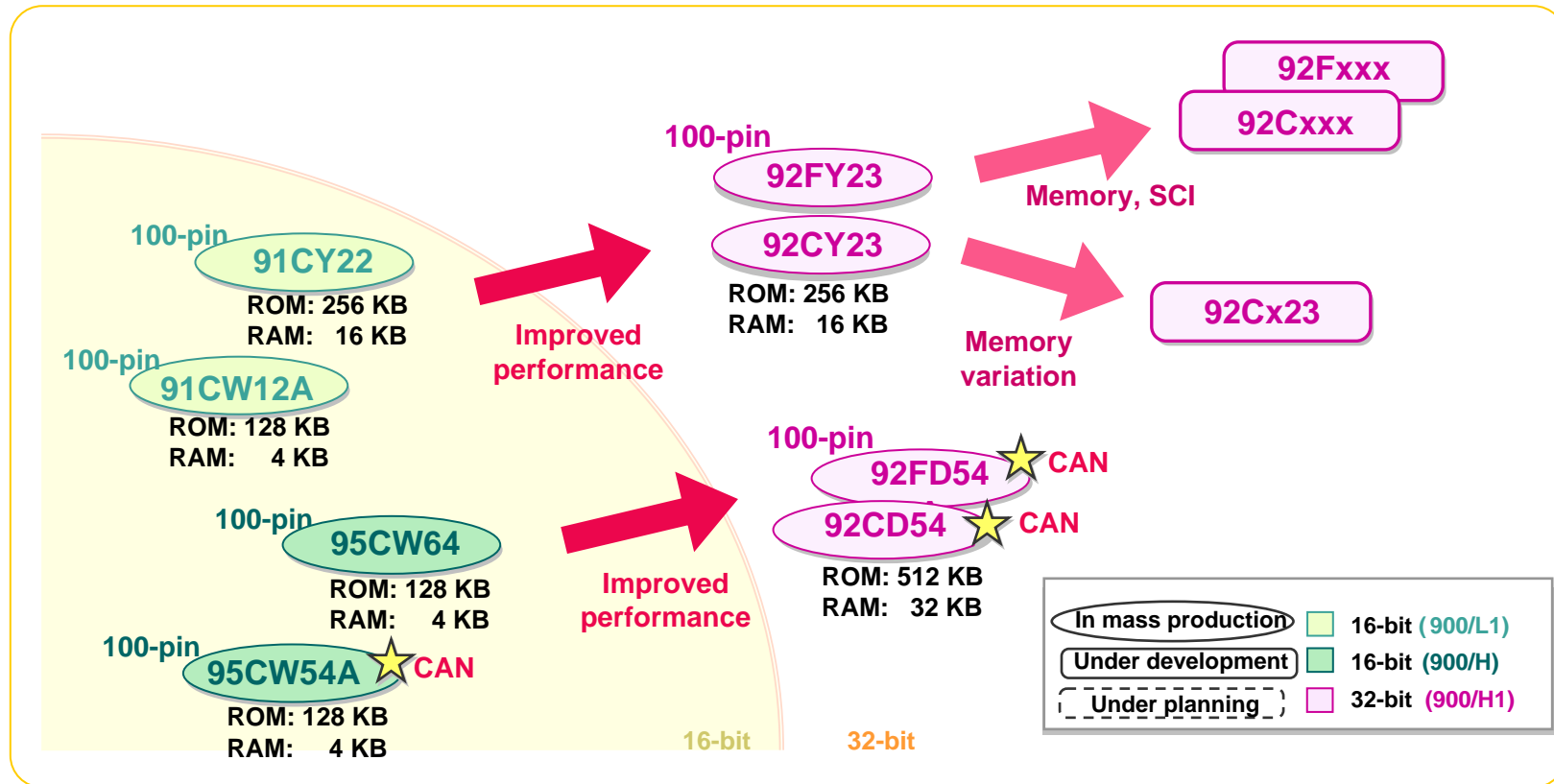
- Built-in LCD driver, VFT driver
- Variations in pixel count, memory size, and pin count

900/L1 Series for CDMP3 Control

- CPU core suitable for CD mechanism control
- Memory variations for CD-TEXT and ID3-Tag

System Control Microcontroller Roadmap

For system control applications, Toshiba recommends the 900/H1 Series featuring higher performance.



Features of System Control Microcontrollers

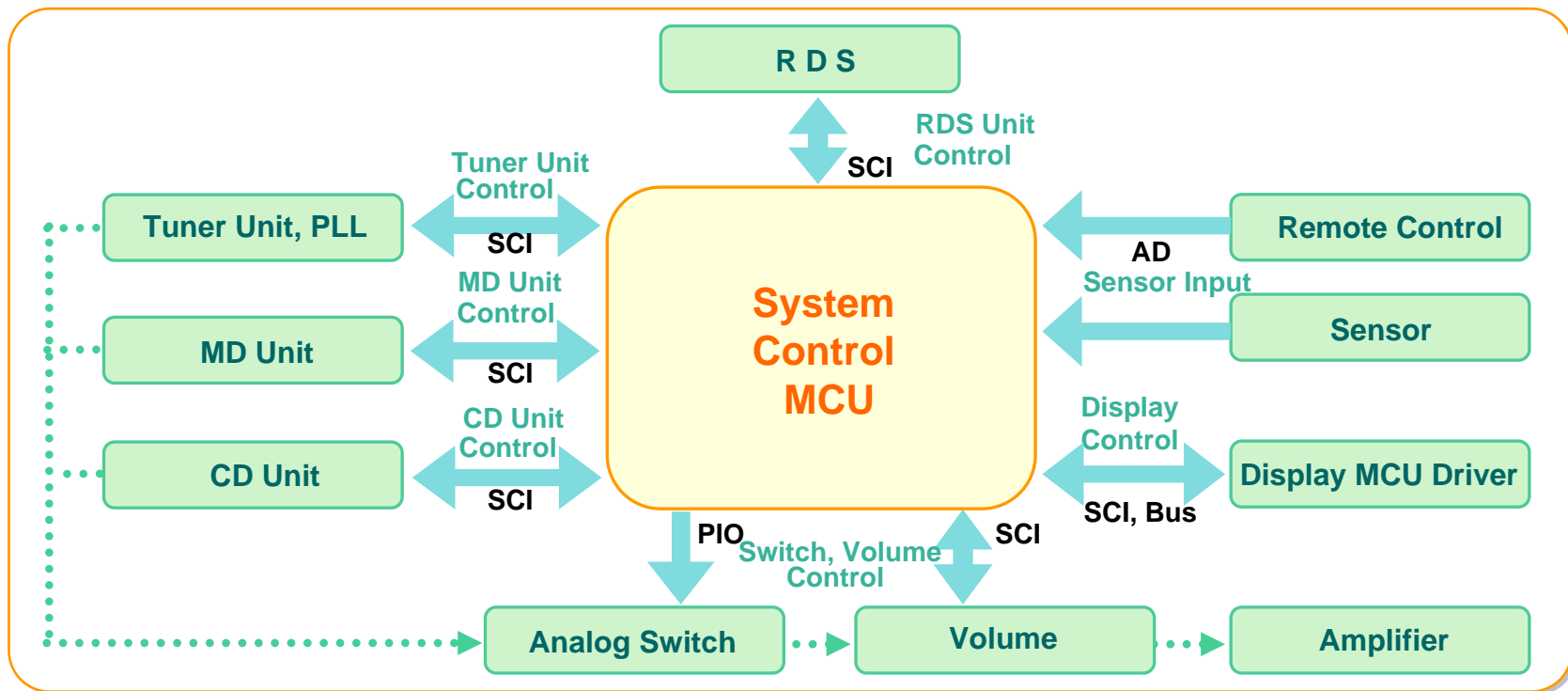
The product line-up has the following features, enabling seamless inheritance of your system and development work.

- **CPU core suitable for system control**
 - High-performance CPU core (900/H1)
Minimum instruction execution time: 50 ns at 20 MHz
 - Low power consumption (at $V_{CC} = 3.3\text{ V typ.}$)
In NORMAL mode : 34 mA
In STOP mode : 0.2 μA
- **Large-capacity memory**
 - Memory variations (128 Kbytes to 1 Mbyte*)
 - Pin count variations*
- **Various serial interfaces**
 - Excellent capability for controlling peripheral units such as tuners, CD/MD units, and display drivers
- **Fully instruction-compatible among the 900 Family**
 - Software-compatible among the 900 Family (900, 900/L, 900/H, 900/L1)

(* Under planning)

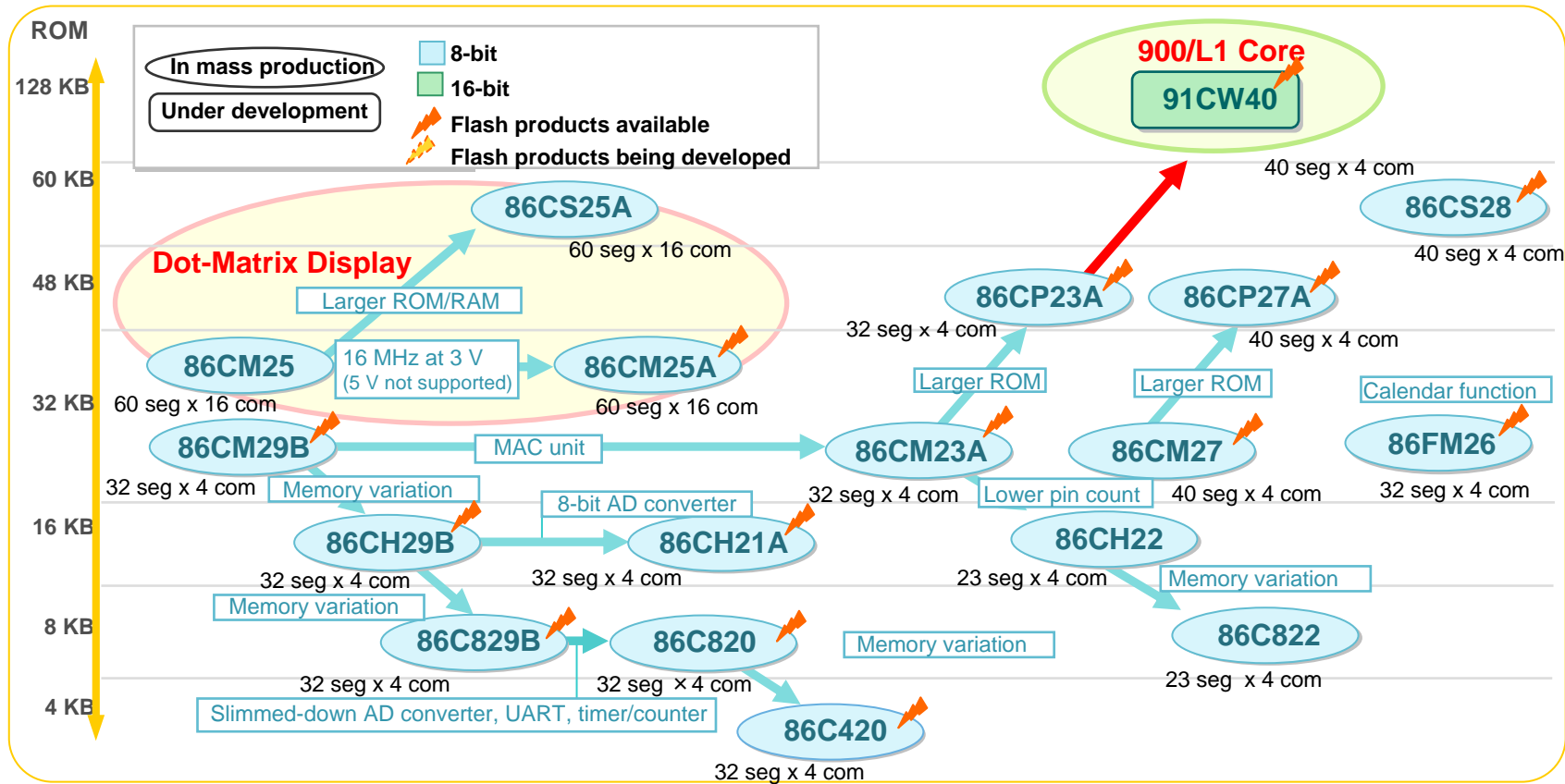
Application Example: System Control Microcontroller

- Main Features**
- High-speed CPU core (Minimum instruction execution time: 50 ns at 20 MHz)
 - Large-capacity memory (128 Kbytes to 1 Mbyte*) (*Under planning)
 - Various serial interfaces
 - CAN controller (available in some products)



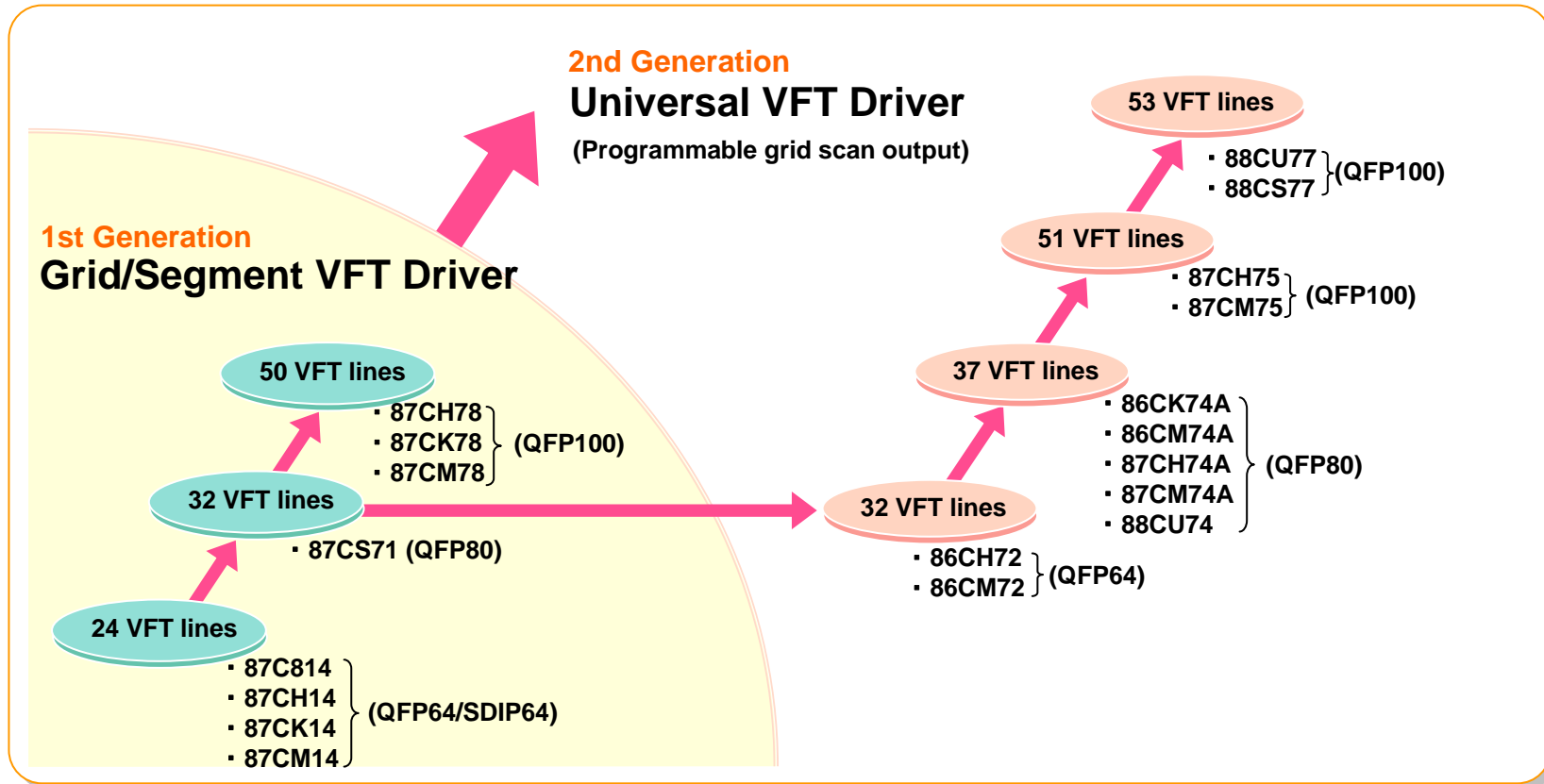
Line-Up of Microcontrollers with LCD Driver

Toshiba's extensive line-up of microcontrollers with LCD driver supports dot drivers as well as 7-segment drivers.



Line-Up of Microcontrollers with VFT Driver

Customers can select a microcontroller according to the required number of lines.



Features of Microcontrollers with LCD/VFT Driver

Variations in pixel count, memory size, and pin count enable customers to select a microcontroller best suited to their needs.

● Microcontrollers with LCD Driver

- 7-segment display
(24 seg x 4 com, 32 seg x 4 com, 40 seg x 4 com)
- Dot-matrix display (60 seg x 16 com)
- Memory variations
- Pin count variations

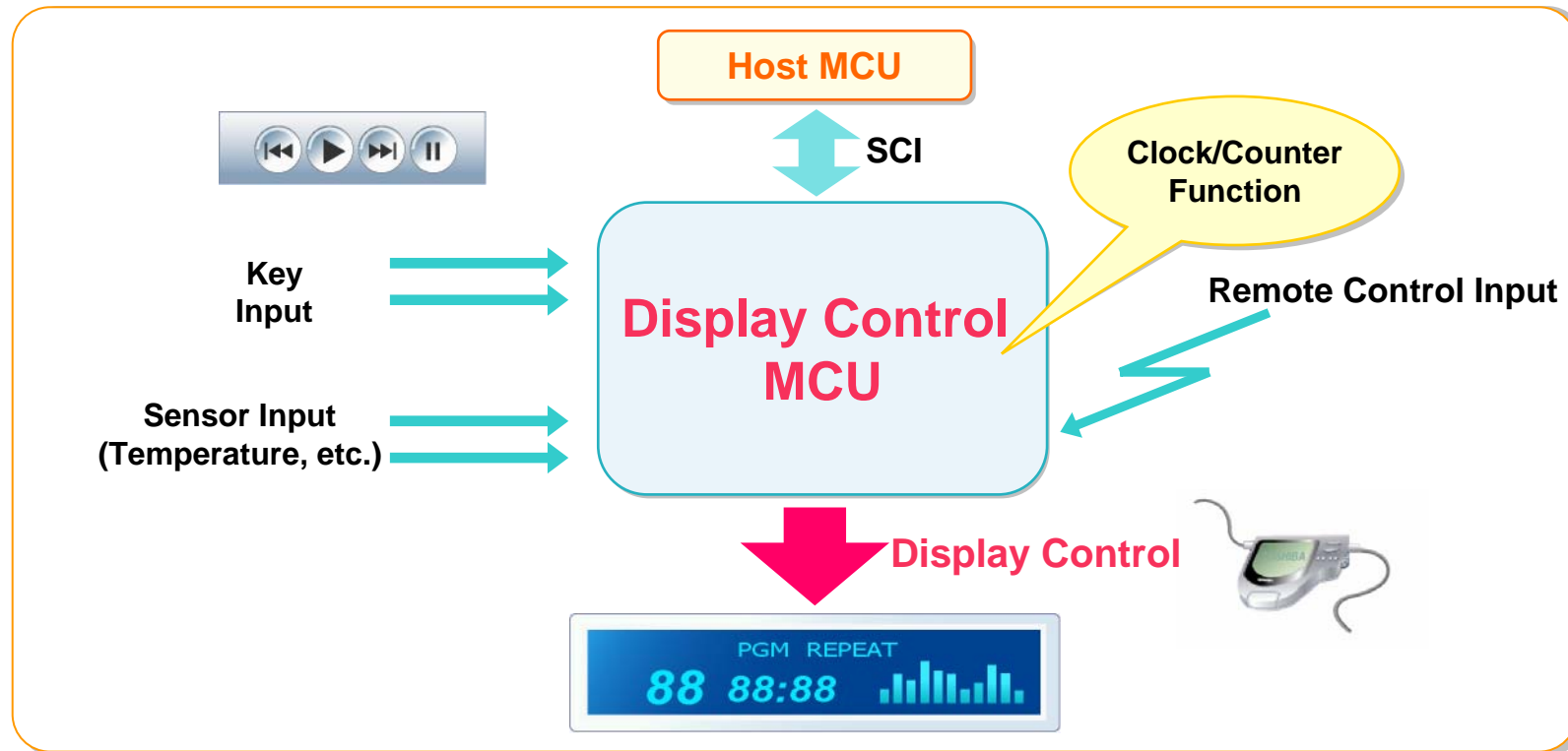


● Microcontrollers with VFT Driver

- High breakdown voltage ports (24 to 53 lines)
- Programmable grid scan output (2nd generation)

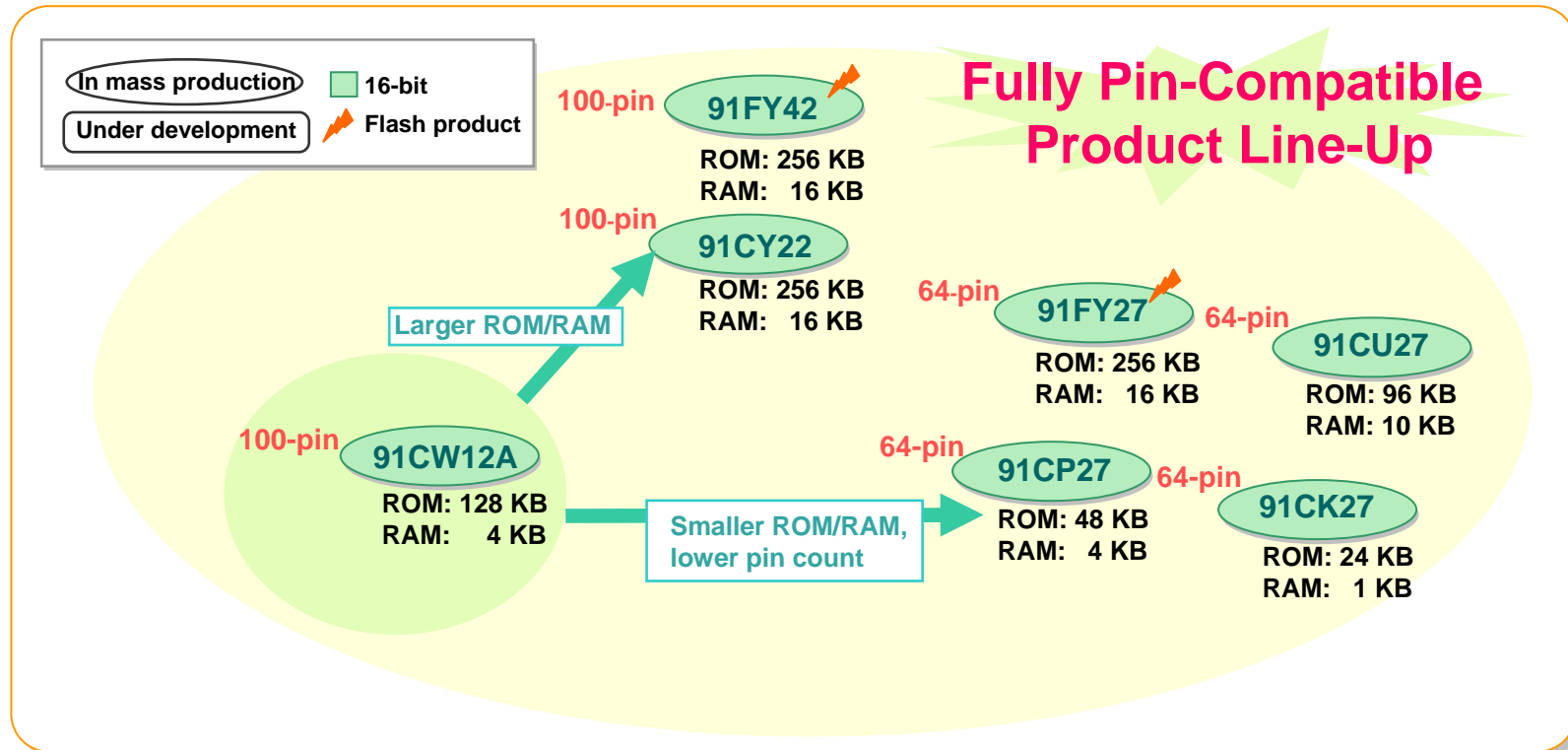
Application Example: Display Control Microcontroller

The display control MCU also contains an AD converter and an external interrupt function, allowing signals to be captured from a human interface.



Line-Up of CD Mechanism/CDMP3 Control Microcontrollers

- Customers can select a microcontroller best suited to their needs.
- The 900 Family is fully software-compatible, allowing software resources to be shared among different microcontrollers in the Family.



Features of CD Mechanism/CDMP3 Control Microcontrollers

Toshiba offers total support including both hardware and software.

● Memory Variations, Pin Count Variations

- 16-bit 900/L1 core suitable for controlling CD servo ICs and CDMP3 decoder ICs
- Product line-up offering I/O and register compatibility (64-pin, 100-pin)
- Memory variations for supporting the CD-TEXT and ID3-Tag functions

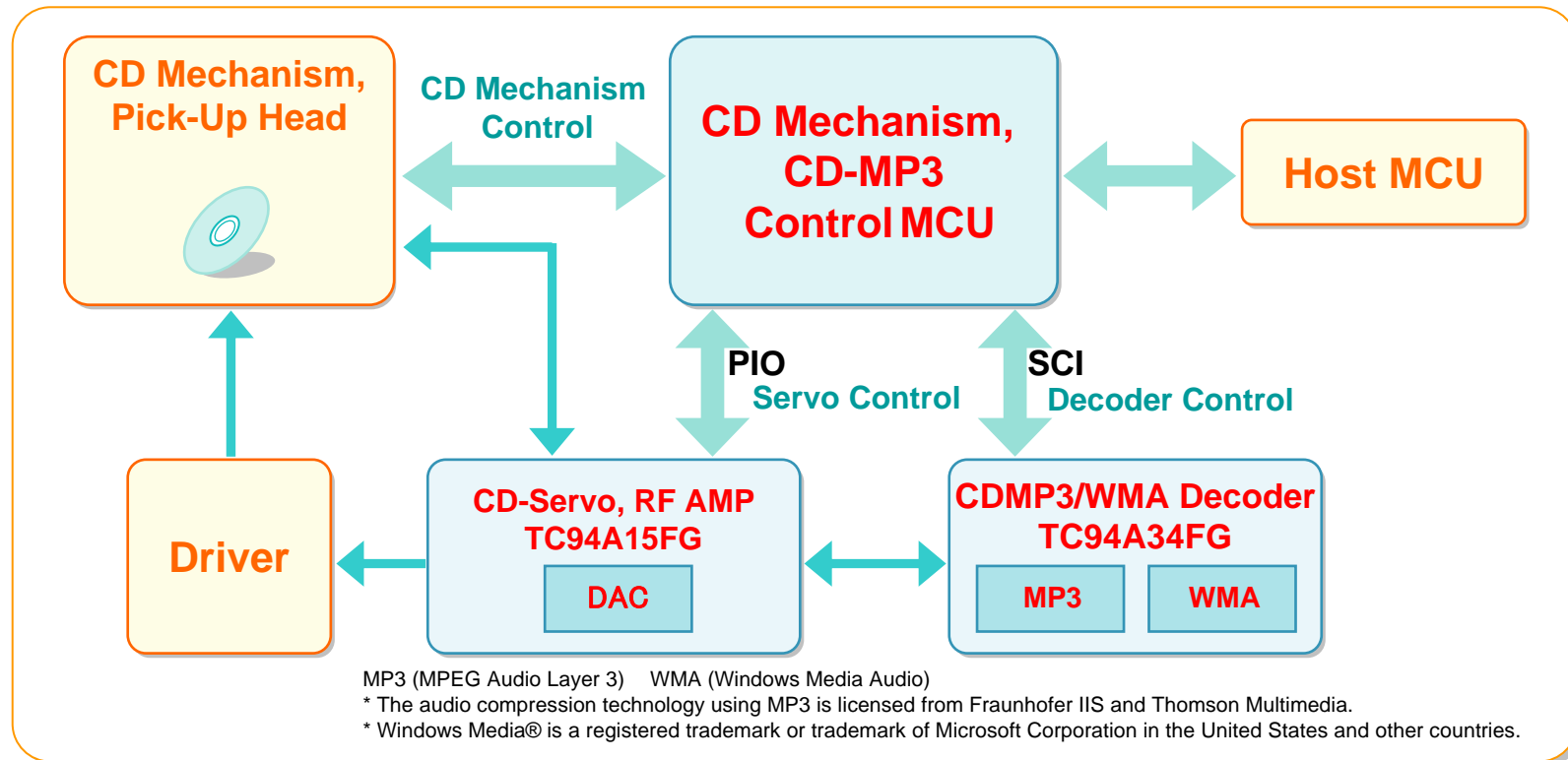
● Software IP Development

- Development of software for controlling Toshiba's CD servo and MP3 decoder
- Reference models



Application Example: CD Mechanism/CDMP3 Control Microcontroller

- Memory variations for supporting the CD-TEXT and ID3-Tag functions
- Pin count variations for supporting various types of CD mechanisms



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