

The first in the industry: Achievement of simultaneous decoding of 2 CHs audio.

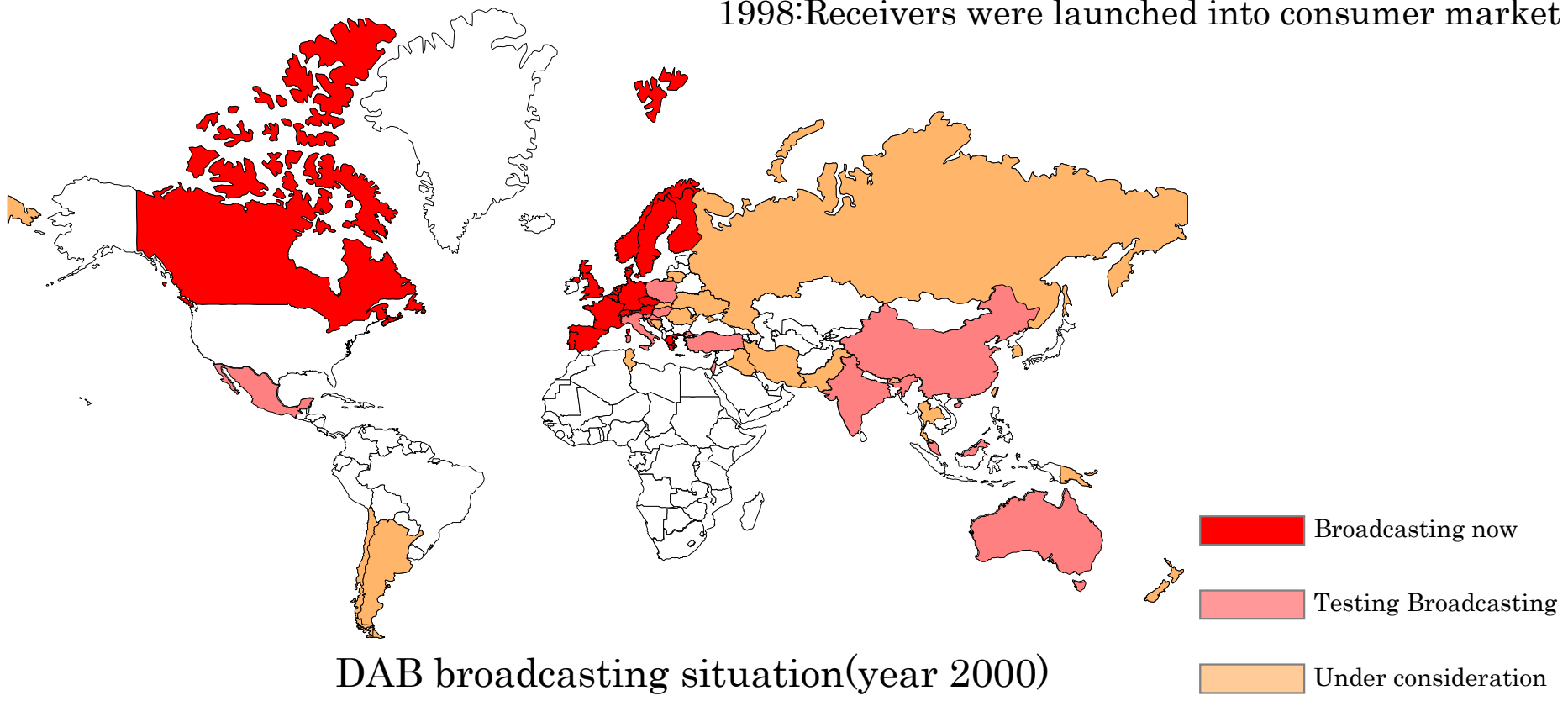
Lowest Power Consumption , DAB baseband
signal processing LSI:MN66720UC

Semiconductor Company, Matsushita Electric Industrial Co.,Ltd.

What is DAB (Digital Audio Broadcasting) ?

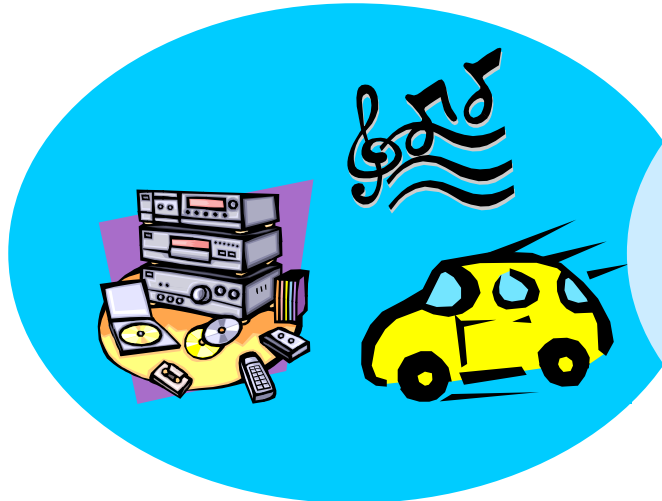
Digital Audio Broadcasting, developed by the Eureka (European Research Coordination Action) 147 project and defined by ETSI as a standard.

1995:BBC(England) started broadcasting
1998:Receivers were launched into consumer market



Characteristics of DAB

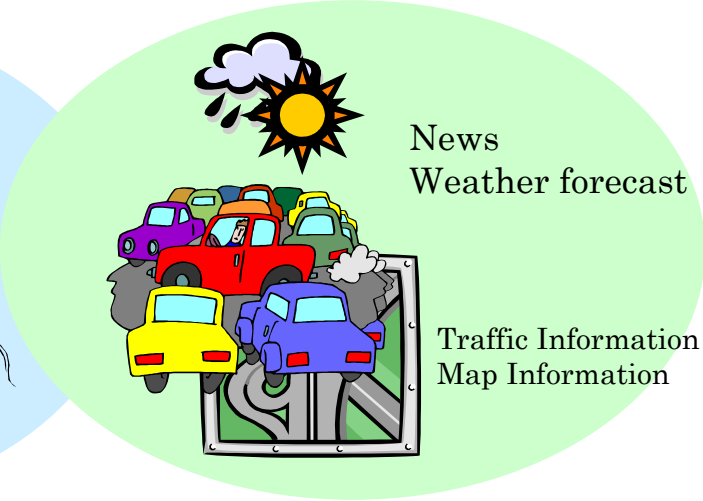
- High Quality Sound (get closer to the sound quality of CD:MPEG1 Layer 2)
- Multi Channel (Multiple programs are broadcast within a single frequency as a multiplex.)
- Letters broadcasting , Data service



Home Audio
Car Audio

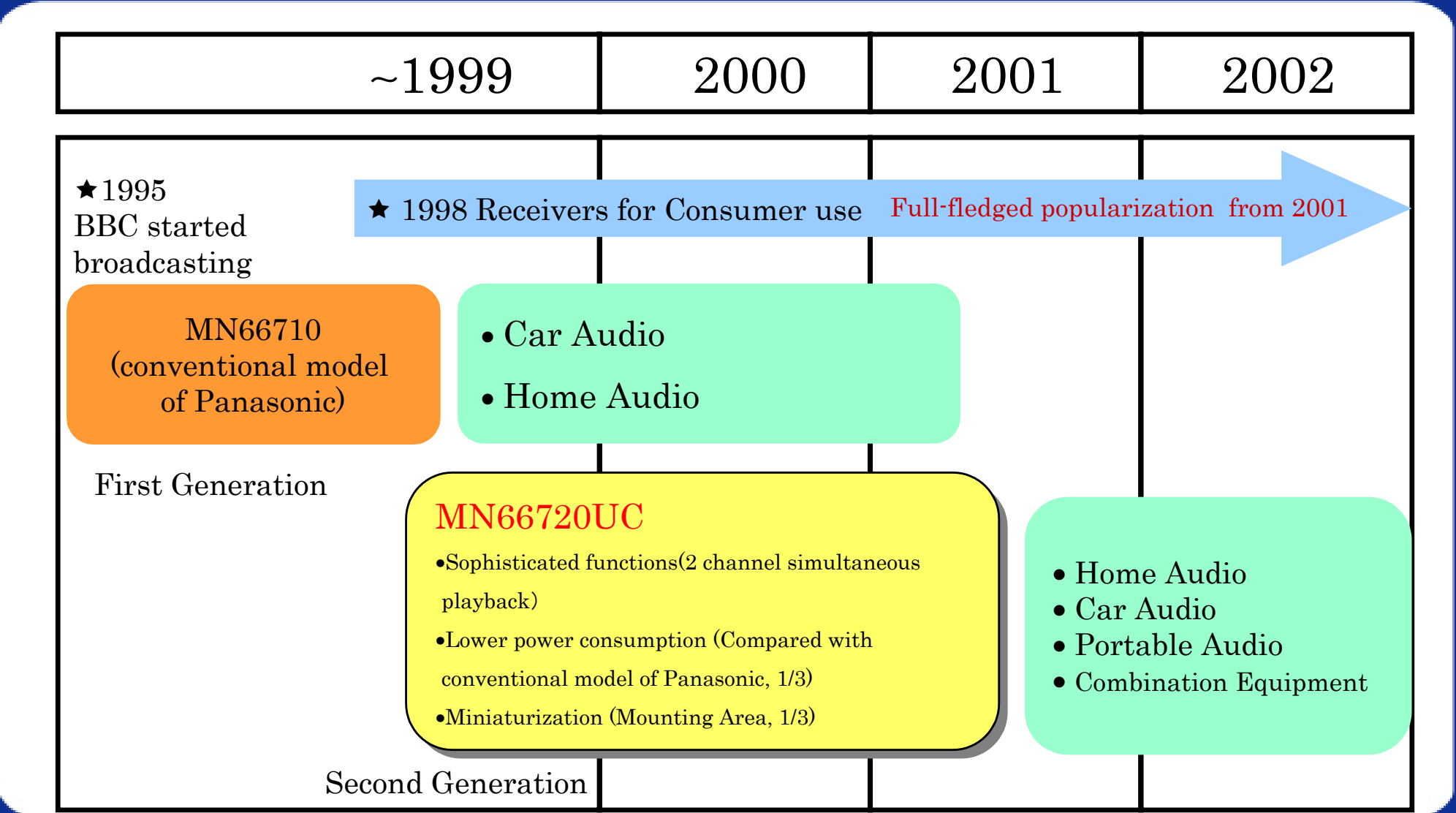


Portable Audio
Combination Equipment



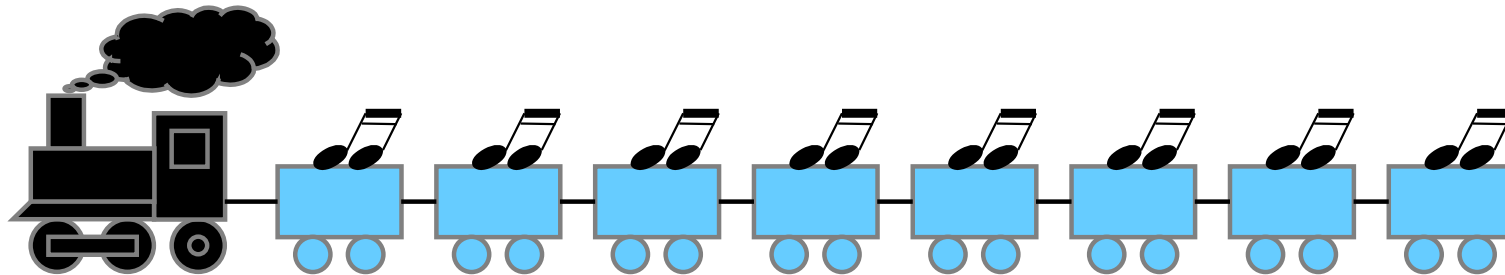
Data service

Activities

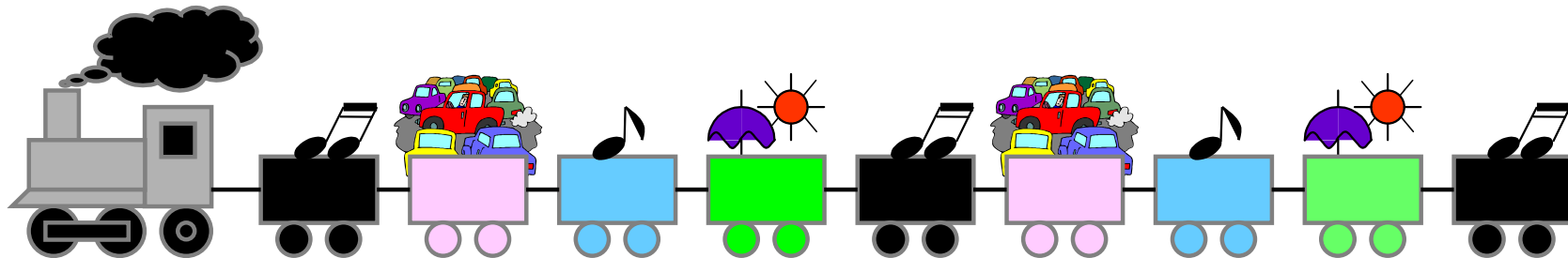


Characteristics of Digital Audio Broadcasting

Analog radio- One program within a single frequency.

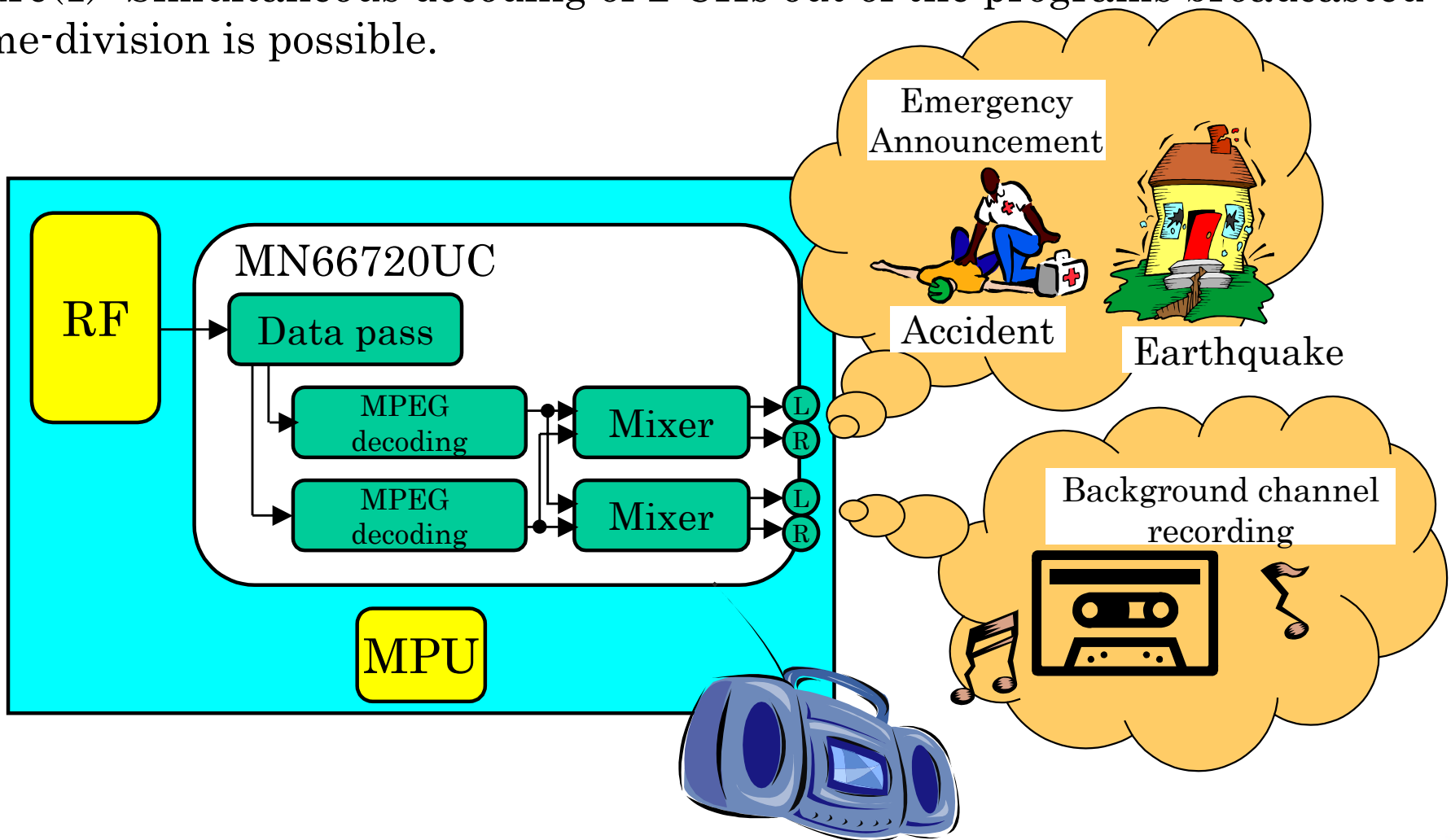


Digital Radio (DAB) - Multiple programs are broadcast within a single frequency as a “multiplex”(Music,data, etc.).



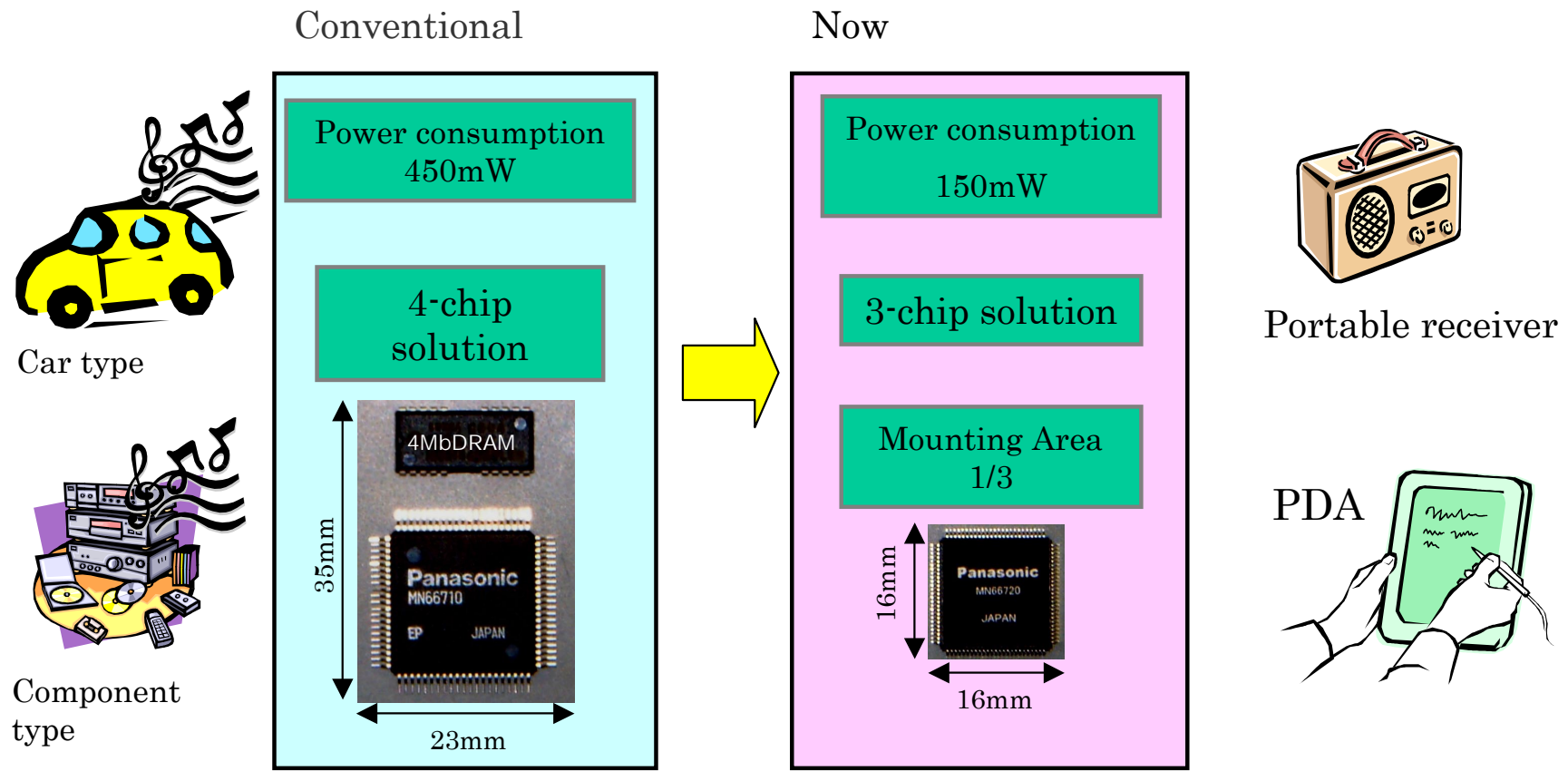
2-channel simultaneous audio decoding

Feature(1) : Simultaneous decoding of 2 CHs out of the programs broadcasted by time-division is possible.



Pioneering the battery-driven portable receivers

- Feature(2): Lowest power consumption in the industry
- Feature(3): Smallest 3-chip composition in the industry



Base technology

- (1) Hybrid architecture which makes high performance and low power dissipation.
- (2) ASSS System that automatically activates the decode circuitry only for those symbols required for the service being listed to.
- (3) Mixed technology of DRAM with analogue which builds in peripheral circuits.

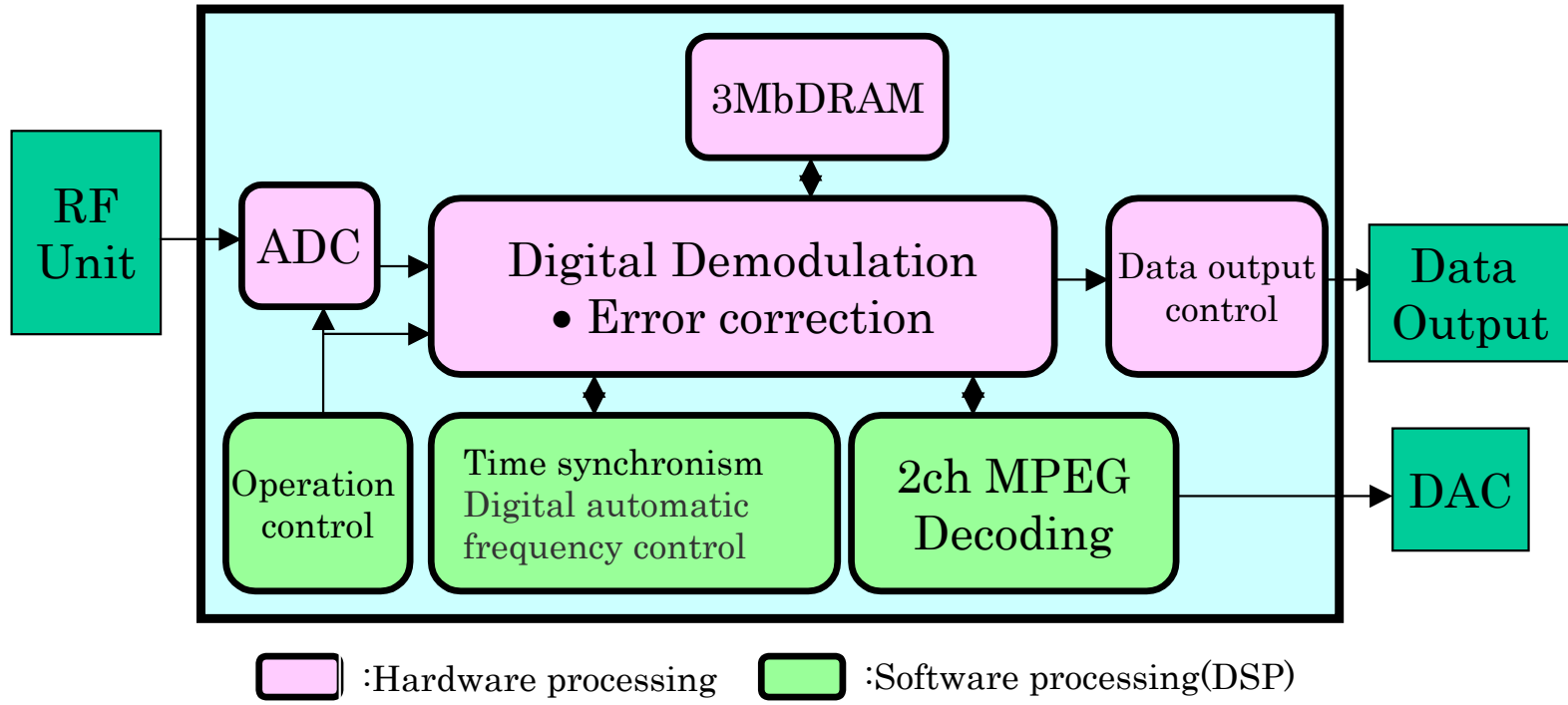
Technology \ Features	Hybrid Architecture	ASSS System	Mixed technology
Features (1) 2-channel simultaneous decoding	◎		
Features (1) Low Power Consumption	○	◎	○
Features (1) 3-chip solution			◎

Hybrid architecture for high performance and low power dissipation

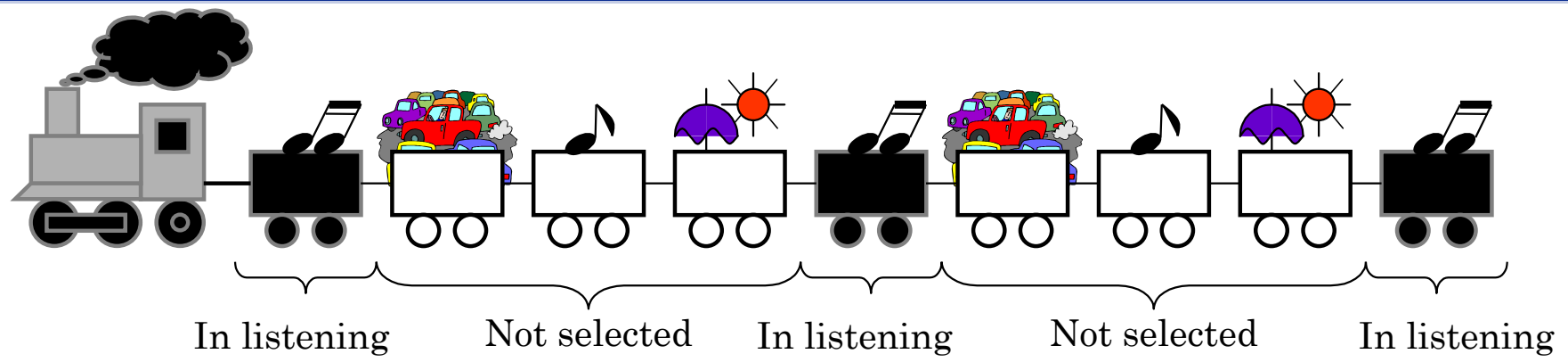
- Optimization of assignment for the hardware and DSP software. Adopting DSP.
- Logic circuit stops the function.
Reducing the operation frequency range

⇒ 2-channel simultaneous decoding

⇒ Low power consumption



ASSS System that activates the decode circuitry only for those symbols required for the service being listened.



Hardware processing	Working	Stop	Working	Stop	Working
Software processing(DSP)	Normal	Operation	Normal	Operation	Normal

Only the program wish to be listened is automatically selected and decoded. During unselected program, the decoding stops.

Low power consumption

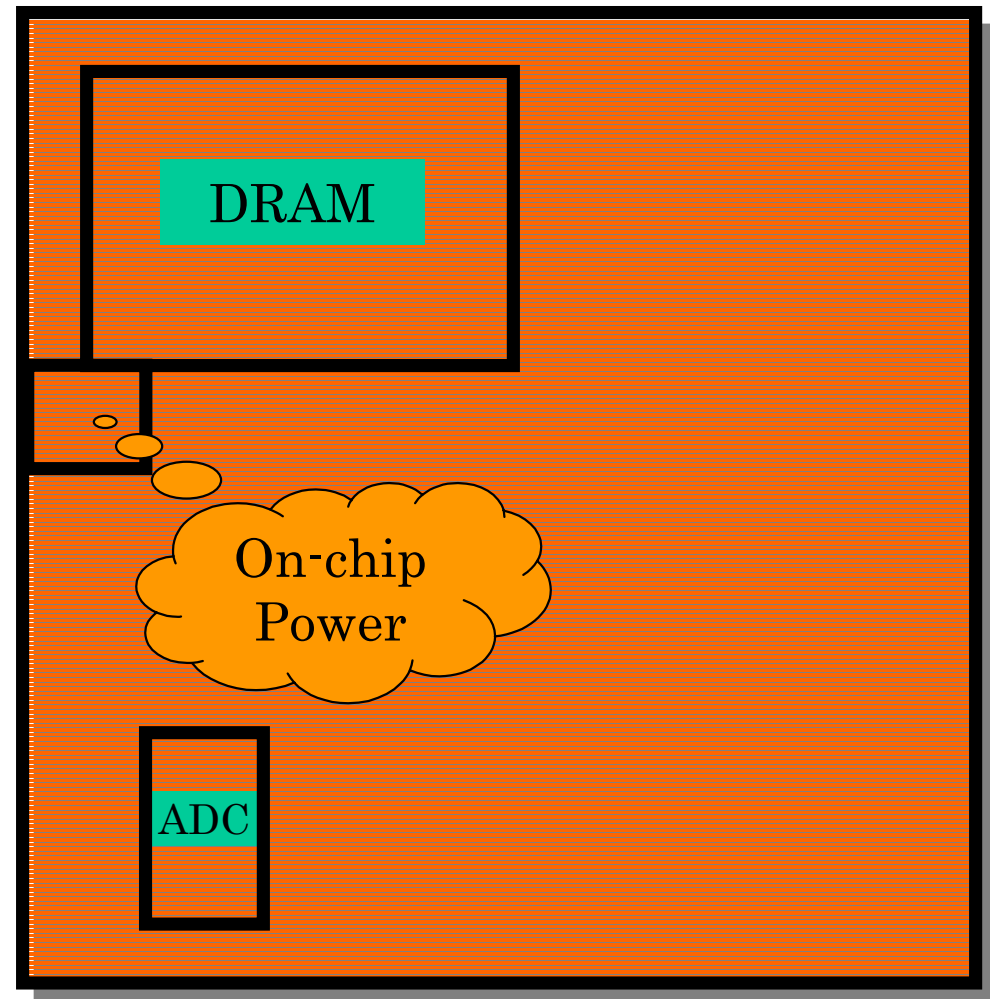
*ASSS System(Automatic Symbol Selection System)

Mixed technology of DRAM with analogue which builds in peripheral circuits

- Mixing 3M b DRAM mixed loading
- A built-in ADC loaded for IF
- Loading an on-chip power supply

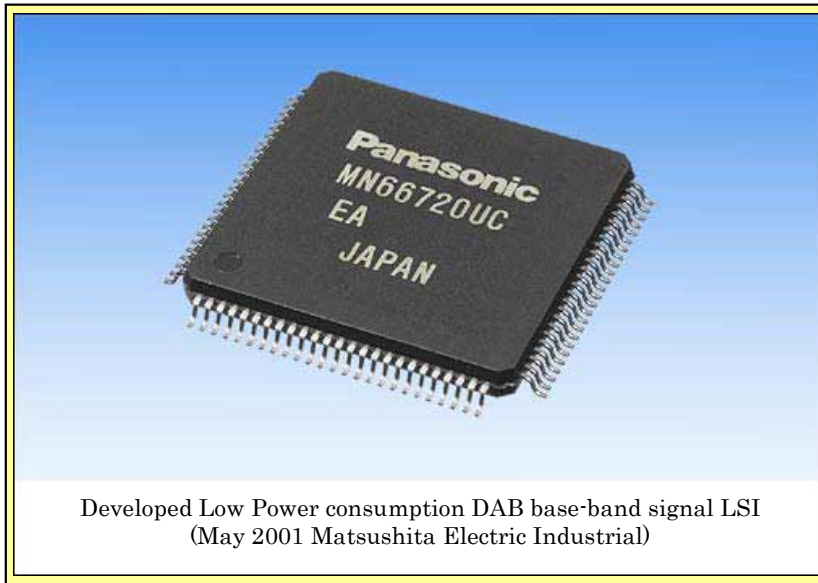
+Adoption of fine fabrication

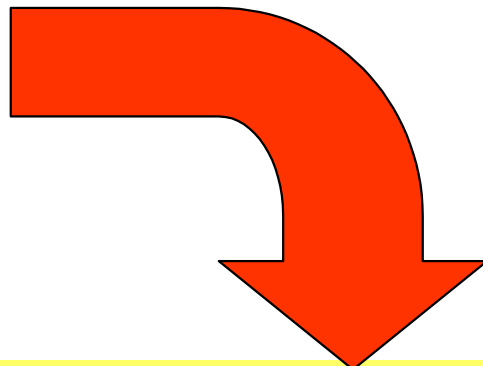
- Achieved low power consumption
- Achieved 3-chip solution



Conclusion

- 2-channel simultaneous Audio decoding
- Smaller size, Low Power Consumption



- 
- Promotion of DAB speed
 - Breakthrough of the portable receivers

Shipping of samples will start from end of May, 2001.