

Product Brief

In-Vehicle Infotainment Reference Design

Embedded Computing



Intel® Single DIN In-Vehicle Infotainment Reference Design



Product Overview

More and more consumers are taking their digital lifestyle on the road, thanks to in-vehicle infotainment (IVI) systems. To keep you connected – wherever you go – Intel® technology provides seamless, integrated connectivity between your home, office and car, including access to e-mail and Internet, music, DVDs, news, and navigation information.

Critical to the deployment of these products and services is a compact, high-performance yet low-power computing platform with built-in flexibility to accommodate common operating systems. The Intel® Single DIN In-Vehicle Infotainment Reference

Design (Intel® Single DIN IVI Reference Design), based on the Intel® Embedded Compact Extended Form Factor (Intel® ECX Form Factor), meets these requirements providing an easy-to-use platform with complete schematics and bill of materials (BOMs) to simplify development and speed time-to-market. The small footprint, compact I/O interfaces and efficient thermal design fit into a standard, single DIN slot, making it ideal for IVI applications. Low-power characteristics of the Intel® Celeron® M processor Ultra Low Voltage 373^A and a fanless thermal solution help eliminate noise and reliability concerns often associated with the use of fans and heat sinks.

Product Highlights

- Helps system integrators, third-party board vendors, and OEMs develop fully integrated IVI systems with unique products and services, and move them to market quickly
- Intel ECX Form Factor supports scalability, performance and flexible expansion
- Compact board design fits into a standard, single DIN slot, allowing a single board to power all IVI features from a central location
- Intel Celeron M processor Ultra Low Voltage 373 at 1.0 GHz and Mobile Intel® 915GM Express chipset meet developer requirements for high-performance, low-power solutions
- PCI Express* ports support future I/O peripheral expansion and flexible connectivity
- Hardware building blocks can be coupled with third-party software solutions (for applications such as navigation, media player, office and gaming) to create a complete IVI system with a consistent user interface
- Extended operating temperatures (-15° C to 60° C) allow operation in extreme environments
- Dual independent display with the Mobile Intel 915GM Express chipset supports display for both front and rear seats
- Dual independent audio stream with Azalia* codec provides output to both front and rear seats
- Guidelines improve boot time through BIOS modifications
- Consolidated I/O connector supports ease of integration
- I/O expansion boards enable flexible connectivity, including Wi-Fi*, Bluetooth*, GPS, TV and cellular
- Intel® architecture is fully interoperable with existing home and office technology
- DC-DC unit with ignition control is automotive-ready to provide a consistent power supply

Intel® Embedded Compact Extended Form Factor

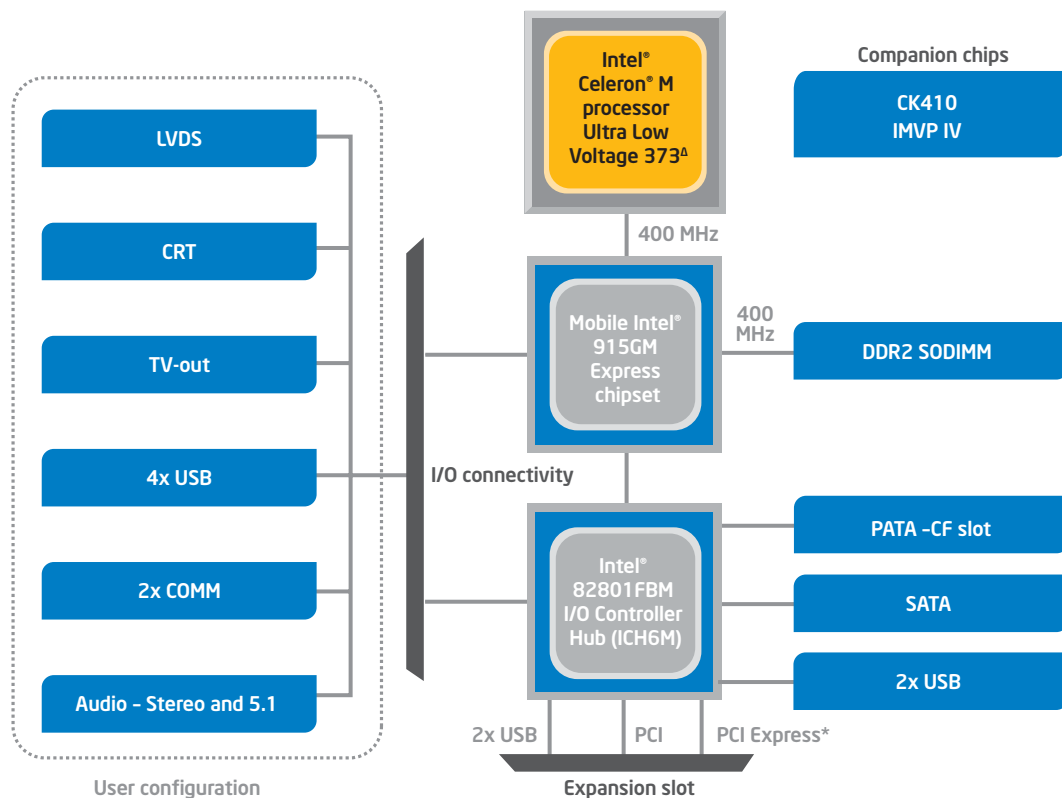
The open specification of the Intel ECX Form Factor addresses the small-space and low thermal requirements of embedded IVI system developers, with performance comparable to desktop platforms. Measuring 105 mm x 146 mm, it offers a 75 percent space reduction over micro-ATX boards. In addition to supporting the low-power characteristics of the Intel Celeron M processor Ultra Low Voltage 373, its fanless thermal solutions help reduce noise and improve reliability. Boards based on the Intel ECX Form Factor

fit into a standard, single DIN slot, providing a simplified, centralized point-of-use for the consumer. This combination of aggressive real estate management, performance of embedded Intel architecture processors, thermal solutions and support for multiple interfaces creates an ideal platform for IVI system designers.

For additional information, please visit:

intel.com/design/embedded/technologies/ecx/index.htm





Intel® Single DIN In-Vehicle Infotainment Reference Design Specifications

Standard dimension	DIN slot
Processor	Intel® Celeron® M processor Ultra Low Voltage 373 ^A at 1.0 GHz
Chipset	Mobile Intel® 915GM Express chipset
Memory	DDR2 400 MHz SODIMM up to 1 GB capacity
Hard disk	One SATA slot
Compact flash	One PATA-CF slot
DVD-ROM	One slim type DVD-ROM drive
Display	7" widescreen, mode digital TFT-LCD with 800 x 480
Display interface	DVI, CRT, TV-out
Audio interconnect	Line-in L/R, Line-out L/R, SPDIF, channel 5.1, stereo microphone
I/O connectivity	Eight USB and two COMM
Expansion card	Bluetooth*, TV tuner and Wi-Fi*
Power supply	Wide range (6.0 V to 14.4 V)
Operating temperature	-15° C to 60° C
Storage temperature	-25° C to 70° C
Expansion slot	USB, PCI, PCI Express*



To learn more about Intel® solutions for In-Vehicle Infotainment, please visit: intel.com/go/infotainment

^a Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See http://www.intel.com/products/processor_number for details.

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