

# WIND RIVER

## Mobile Broadcasting Increases Efficiencies, Differentiation with Wind River

### Company Builds Handheld Receiver for its MobaHO! Nationwide Broadcast Using Wind River Linux

Mobile Broadcasting Corporation, established in May 1998, provides satellite mobile broadcasting services. The company recently rolled out its MobaHO! broadcasting service for mobile terminals, which offers eight video channels and 40 audio music channels. Mobile Broadcasting also offers mobile phones and other devices that receive their broadcasting services.

MobaHO! digital broadcasts use a dedicated satellite, enabling the majority of the Japanese population to view the same program and enjoy clear pictures and sound. In addition, the service uses the S band (2.6GHz band) frequency range, allowing use of smaller reception antennas.

"No other mobile broadcasting services afford such a wide range of channels with the amount and variety of music we offer," says Atsushi Itsukaichi, Senior Manager, Business Planning Group, Mobile Broadcasting. "For example, only MobaHO! offers broadcasts of American FM radio stations."

Another key strength of MobaHO! is that gap-fillers (signal repeaters) offer stable service even in areas such as the shaded sides of mountains, or the insides of buildings and tunnels where satellite signals typically cannot reach.



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*—Atsushi Itsukaichi, Senior Manager, Business Planning Group, Mobile Broadcasting Corporation*

#### **Company Profile: Mobile Broadcasting Corporation**

- Mobile Broadcasting Corporation provides digital satellite broadcasting services called "MobaHO!" for mobile terminals
- Headquarters in Tokyo, Japan

#### **Industry**

- Satellite broadcasting

#### **Solutions**

- Wind River Platform for Consumer Devices, Linux Edition
- Wind River Workbench, On-Chip Debugging Edition

#### **Results**

- Increased development efficiency by 20%
- Improved boot time by 66%
- Availability of existing kernel and drivers accelerated time-to-market by two months
- Achieved differentiating customization through Wind River Professional Services

## MobaHO! Receiver Built on Wind River

Mobile Broadcasting recently introduced its MBR0501A portable receiver for the company's satellite broadcasts. This handheld receiver has:

- A 3.5-inch LCD wide-view display provides high-quality visual content and 1Seg broadcasts on a big screen
- More compact and lighter (approximately 185g) than previous terminals
- A large incorporated battery that provides approximately four hours of continuous MobaHO! viewing or six hours of 1Seg viewing
- Up to nine hours of video programming, or approximately 78 hours of maximum audio/music programming (equivalent to about 1,500 songs) on the MobaHO! 2GB SD card
- The ability to check artists' names and songs currently being aired (most audio/music channels support this feature)

Mobile Broadcasting adopted Wind River Platform for Consumer Devices, Linux Edition as its operating system, and the Workbench toolset, to increase development efficiencies for the MBR0501A portable receiver. The company selected Toshiba Digital Media Engineering (Toshiba DME) to develop the MBR0501A.

"We had a short development time frame to build the MBR0501A," explains Toshiyuki Tsuruoka, Applied Digital Equipment Software Department Manager, Software Center, Toshiba Digital Media Engineering Corporation. "By adopting Wind River Linux, we were able to use an existing system as the base and take full advantage of our experience and resources to accelerate the development time."

Mobile Broadcasting considered other operating systems that could be embedded, but decided to adopt Linux because of its reputation, longevity, and existing kernel and driver availability.

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Using an evaluation board running Wind River software, Mobile Broadcasting expected to improve its development productivity. Tsuruoka says these expectations were fulfilled, and that it was easy to migrate the kernel and drivers. In the end, Mobile Broadcasting increased its development efficiency by 20% with Wind River Linux.

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Video content on the MBR0501A is displayed with crisp images and extremely smooth playback. The coding/decoding is done in real-time, while streaming video uses software to perform the codec processing.

"In addition to performing codec processing, the software handles processing such as the placement of quick views on images," Tsuruoka says. "We received support from Wind River in this and other areas. Wind River engineers also provided assistance in other areas, such as settings for the boot loader, start-up tuning for better performance, and optimization of hardware settings.

"We experienced significant value in using Wind River Professional Services," he adds. "Wind River helped us eliminate three seconds off of our boot time. It improved by 66%."

Mobile Broadcasting also used Wind River Professional Services to help customize Wind River Platform for Consumer Devices, Linux Edition, including reducing the kernel footprint to address memory-capacity limitations.

"Wind River solutions and services contributed greatly to making the MBR0501A a reality," Tsuruoka concludes.

### Learn More



For additional information about the products mentioned in this case study, please visit:

[www.windriver.com](http://www.windriver.com)

<http://www.mbco.co.jp/english>