

Business Systems Using Handheld PCs

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*OVERVIEW: In recent years, we have been witness to rapid developments in such areas as notebook PCs and mobile information terminals, and a growing awareness of increased productivity in administration and other corporate activities. In this backdrop, mobile terminals have come to be used in a wide range of business fields. With a view to this situation, Hitachi, Ltd. has developed a handheld PC equipped with Windows CE*¹, the operating system that is fast becoming the mainstream in the context of mobile terminals. This paper describes the notable features of handheld PCs, as well as examples of applications for these terminals in Japan.*

INTRODUCTION

BUSINESS people who travel frequently, or attend many meetings and customer visits, are finding more and more uses for notebook PCs, personal digital assistants (PDAs), and a variety of other portable information terminals. Earlier this year, Hitachi, Ltd. developed a line of highly portable MS Windows CE-based handheld PCs that allow seamless applications of digital information inside and outside of the office. They are portable information terminals that offer operational compatibility and data transfer with Windows 9x/NC computers, thus providing the user with an office-level working environment even while on the move. Along with personal information management functions such a scheduler and address book, standard software includes communication-related functions for sending and receiving e-mail, or

accessing the Internet. In this way, the user can exchange information and reports between outside locations and the office, while maintaining easy access to required information.

Hitachi has equipped its handheld PCs with development tools such as MS Visual Basic for Windows CE, so users can develop a variety of applications. As a result, these models have come to be used in a wide range of industries (Fig. 1).

HITACHI HANDHELD PC

Characteristics of Hitachi's Handheld PCs

Handheld PCs portable information terminals equipped with Windows CE are becoming the

*1 Windows is a registered trademark of Microsoft Corp. in the United States of America and in other countries.

MIPS: Million Instructions Per Second
* cdmaOne is a registered trademark of CDG (CDMA Development Group).
** ATOK is a registered trademark of Justsystem Corporation.

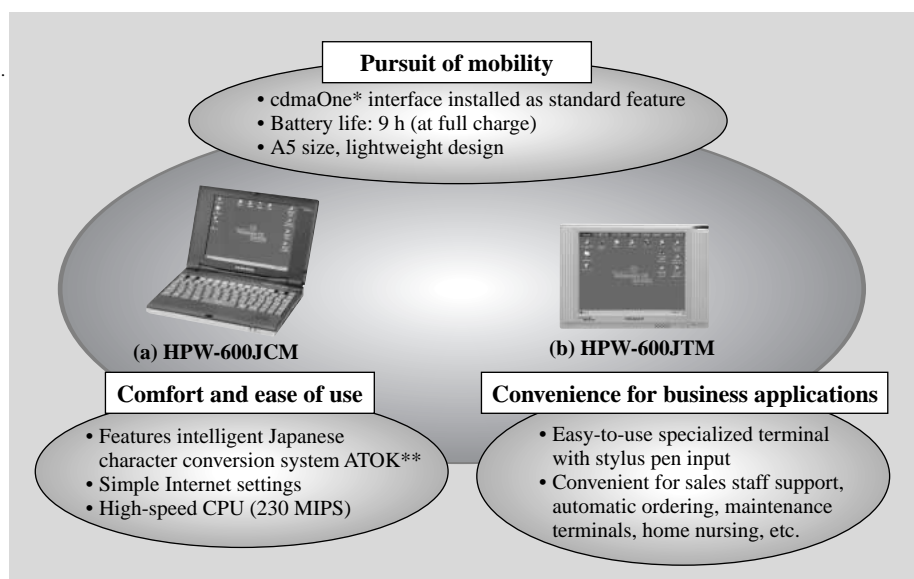


Fig. 1— Two Versions of Hitachi's Handheld PC and the Characteristics of Each. The highly mobile Hitachi handheld PC is used for business applications in a variety of industries.

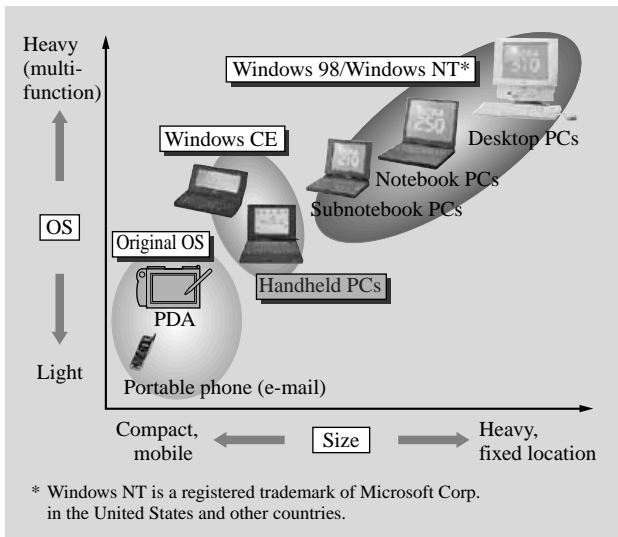


Fig. 2— Positioning of Handheld PCs.
Handheld PCs are the Windows units best suited to mobile computing, with a compact size and a lighter OS.

mainstream products in the market for mobile terminals. Fig. 2 illustrates the position of these products [in relation to heavier terminals with larger operating systems]. Handheld PCs are among the more inexpensive units in the “Windows family.” Moreover, because they are specifically designed for mobile applications of Windows functions, they can offer the productivity of a Windows-based computer anytime and anywhere the user requires (Fig. 2). Following are the main features of Hitachi’s handheld PCs:

- (1) Users familiar with Windows-based PCs can use it without referring to a manual.
- (2) The unit offers access to abundant Windows development resources.
- (3) OS and applications are in ROM format, ensuring high reliability, and allowing all applications to be used as soon as the power is turned on.
- (4) Low power consumption allows hours of operation on battery power.
- (5) Use of a hard disk has been eliminated, making this unit compact and easy to carry.

Specifications of Hitachi’s Handheld PC

Hitachi, Ltd. has developed a tablet-type handheld PC equipped with Windows CE, H/PC Pro Edition V3.0, and a VGA (Video Graphics Array) LCD screen. Following are the main specifications of this handheld PC:

- (1) Compact, lightweight, and handy for carrying
- (2) Improved processing speed

Features the SH-4, from Hitachi’s “SuperH RISC engine” family of high-performance RISC (reduced

instruction set computation) processors. Offers easy operations within any application, as well as Internet access using the “Pocket Internet Explorer.”

- (3) High-speed modem
Equipped with a high-speed 56-kbit/s modem.
- (4) Easy-to-use touch-screen LCD
- (5) Long-lasting battery allows up to nine hours of operation
- (6) VGA color LCD screen
Features a 7.5-inch, 65,000-color VGA-STN (supertwisted nematic) LCD screen, with a dedicated display control LSI to further increase display performance.
- (7) USB (universal serial bus) interface offers improved expandability.
- (8) Monitor output
External monitor output allows applications in business presentations.
- (9) Anti-microbial coated body
The anti-microbial UV coating is difficult to scratch or damage, and prevents bacteria from breeding.
- (10) Quick-start key
Allows easy start-up of business applications, even from “Power Off” status.

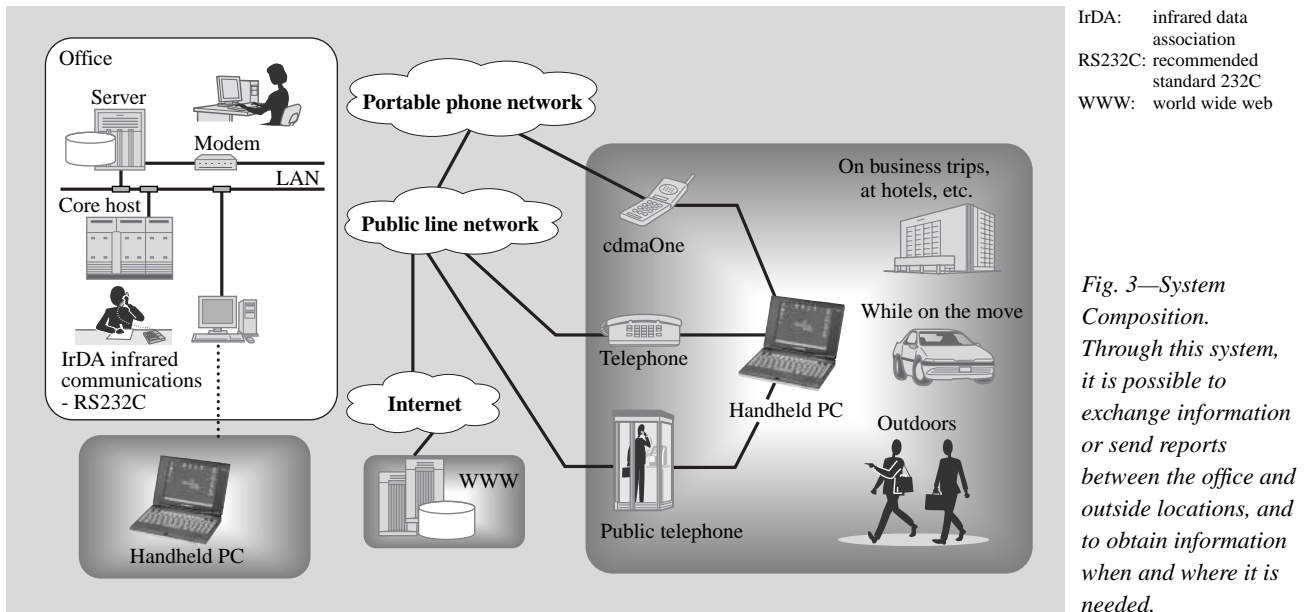
APPLICATIONS IN BUSINESS-RELATED SYSTEMS

Following is an outline of how handheld PCs with the functions noted above can be put to use in systems related to business applications.

The most fundamental example of such a system is one that is comprised of an address book and personal information management functions, along with e-mail, Internet, and intranet access. This makes it possible for the user to exchange information and reports between the office and an outside location, and also to obtain any information that might be required at any time. Fig. 3 illustrates one example of this type of basic system, along with some common applications.

There has been a rapid increase in the demand for dedicated terminals using Windows operating systems that have been modified for use in specific industries. This is because the development of new software for these dedicated terminals, and the creation of practical applications based on Windows CE, has made it possible to easily transfer Windows 9.x or NT applications to these handheld PCs.

Furthermore, the tablet-type style of operation means that even users unfamiliar with standard PCs can easily enter data using the interactive screen.



This type of system offers a wide range of applications, including the health care industry (such as hospitals and home nursing), stock management at stores and warehouses, and order control in the distribution industry.

CONCLUSIONS

Here, we have presented an overview of trends in mobile communication devices, and the features of Hitachi's handheld PCs. The market surrounding mobile communications is expected to expand even

further in the future. Given this situation, manufactures will have to deal with a number of new issues, including: (1) reductions in communication costs; (2) measures to avoid line interruptions, ensuring reliable data transfer; (3) increased security; and (4) ThinClient compatibility (ThinClient: terminals designed specifically for Internet applications).

Hitachi will continue to promote the development of both mobile middleware and agent software for use with handheld PCs.

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