

Specialized Printing Function for Office A3 Color Multi Function Printers: MC860 Series

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The technologies that OKI Data, as a printer specialist, has cultivated over many years have been packed into the MC860 Series, our first A3 multi function printers for the Japanese market and targeted at the “printer users of multi function printers”. Utilizing the proven A3 color LED printer as the base engine, copier, fax and scanner functions have been integrated into a compact body. With a small footprint and stylish design, a single unit can provide businesses, from SOHO to large corporations, a more comfortable office environment.

Multi Function Printer Market Trends

As shown in **Figure 1**, total shipments of copiers, printers and multi function printers (MFPs) in Japan are declining year after year. Shipments of color copiers are so small they are almost unidentifiable on the graph. With respect to total shipments of MFPs and copiers, ratio of MFPs (versus copier ratio) is slowly but steadily growing each year. It is expected that copiers will eventually disappear replaced by the MFPs. In comparing total shipments of MFPs against printers, ratio of MFPs (versus printer ratio) increased from 2007 to 2008, but from 2008 to 2009, it was essentially flat.

Similar to the Japanese market, world shipments of copiers, printers and MFPs are decreasing every year as can be seen in **Figure 2**. Total shipment ratio of MFPs to copiers and ratio of MFPs to printers both show slight yearly increases.

Comparing the 2008 and 2009 shipments for each category, in 2009, every category experienced a drop from the previous year. However, in 2008, Japan saw color MFPs and color printer shipments increase from the year before, and the world market saw color MFP, monochrome MFP and color printer shipments go up. For 2009, only the world market’s color MFP shipment increased from the previous year.

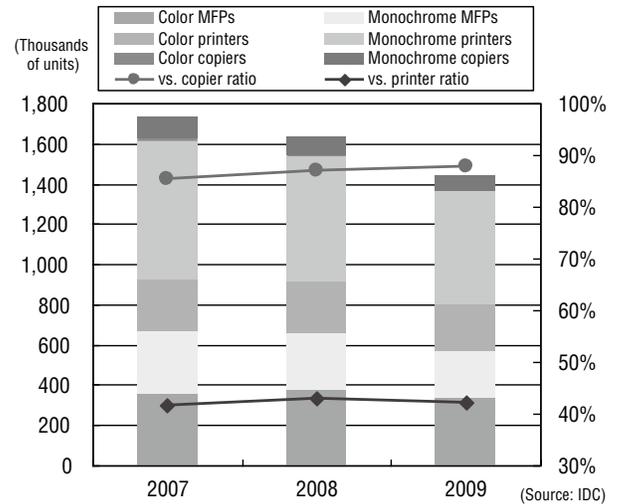


Figure 1. Japan's Domestic Shipments of Copiers, Printers and MFPs¹⁾

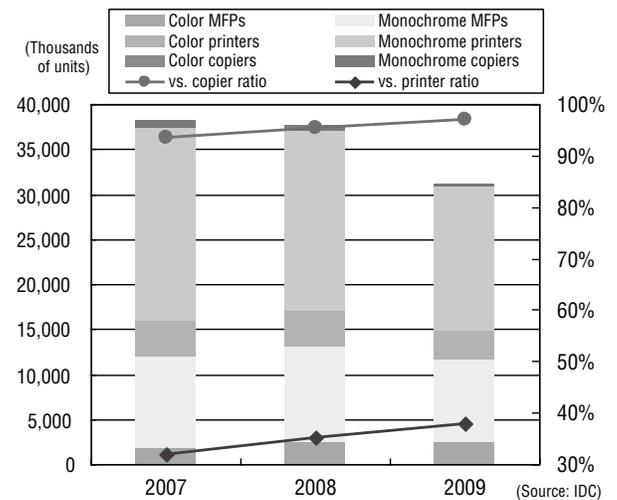


Figure 2. World Shipments of Copiers, Printers and MFPs¹⁾

Furthermore, with respect to total number of copiers, printers and MFP shipped, the Japanese market has a larger percentage of color MFP shipments than the world market.

From these observations, color MFPs are a necessity for survival in the copier/printer/MFP market.

MC860 Series

The MC860 Series consists of the desktop MC860dn model (**Photo 1**) and the large paper capacity MC860dtn model (**Photo 2**). These models are business color MFP capable of meeting a variety of office needs. While able to handle A3 sheets, they have been built with compactness and mechanical durability in mind.

Additionally, the models are extremely eco-friendly as they are fully compliant with Energy Star, RoHS Directive, Eco Mark and Law on Promoting Green Purchasing.

Table 1 shows the general specifications of the MC860 Series.



Photo 1. MC860dn



Photo 2. MC860dtn

(1) High quality printing

The MC860 Series, as printers, have high basic performance. High-speed printing is achieved using “single pass” process that prints the four colors in a single step. Large volumes of color documents can be printed just as fast as monochrome. The models are capable of color and monochrome printing (A4 horizontal feed, single-sided printing) at 26ppm and 34ppm, respectively. Use of our proprietary multi-tone digital LED printhead enables the MFPs to produce 4-tone smooth dots, and together with 600dpi x 1200dpi print resolution, render beautiful photos and texts for highly appealing documents. The micro-fine HD (High Definition) toner used in the MFPs is formed from 5.5-micron particles that make high-resolution printing possible. Automatic duplexing is standard equipment and reduces paper use.

The simple internal structure (**Photo 3**) minimizes paper jams. Even if paper jam occurs, the paper is easily removable. The simple chassis design also allows for higher durability.

Various paper sizes are supported including A3, A4,

Table 1. MC860 Series General Specifications

Printer Function	Print method	Full- color, dry electrophotographic system using four digital LED heads
	Continuous print speed	Color: 26ppm (Plain paper, A4 horizontal feed/Copy mode (multiple copies)) Monochrome: 34ppm (Plain paper, A4 horizontal feed/Copy mode (multiple copies))
	Resolution	600 x 1200dpi maximum
Copier Function	Copy type	Digital
	Scan method	Color CCD
	Scan resolution	600 x 600dpi, 600 x 300dpi
	Copy resolution	600 x 1200dpi
	Continuous copy speed	Color: 26ppm (A4 horizontal feed/300dpi) Monochrome: 34ppm (A4 horizontal feed/300dpi)
	Fusing method	Heat roller fusing
Scanner Function	Additional features	Reduction/enlargements, mixed originals, aggregate (n-to-1) copying, Edge/Center erasing, margin shifting, pagination
	Type	Color scanner
	Scan resolution	600 x 600dpi
Fax Function	Output formats	PDF, JPEG, TIFF, M-TIFF, XPS
	Communication line	PSTN (Public Switched Telephone Network)
	Scanning line density	Main scanning: Standard/High quality mode: 8 dots/mm, Ultra high quality mode: 16 dots/mm, 8 dots/mm Sub-scanning: Standard mode: 3.85 lines/mm, High quality mode: 7.7 lines/mm, Ultra high quality mode: 15.4 lines/mm
	Communication speed	33,600bit/s (auto fallback)
	Data compressions	MH/MR/MMR/JBIG
	Communication standards	ITU-TG3, Super G3



Photo 3. Internal Structure of MC860 Series MFP

A5, A6, B4, B5, Letter, Legal (13 inches/13.5inches/14 inches), Executive, envelopes, postcards and return postcards. Printing on long length forms up to 1,200mm x 297mm is possible.

(2) Hassle-free copying

For copying, the MFPs can make continuous high-speed color and monochrome copies (A4 horizontal feed, 300dpi continuous copies) at 26ppm and 34ppm, respectively. Copies of required documents can be quickly made when needed. To eliminate hassles for users, the MFPs come standard with RADF (Reversing

Automatic Document Feeder) capable of handling A3 duplex copying. Maximum of 50 continuous copies is possible, and duplex printing is quick since there is no need to manually flip over the documents. When making continuous copies using the RADF, the MFPs can reduce in size and combine two, four or eight pages of the original onto a single page reducing paper usage.

The MFPs are also equipped with a margin shifting function that shifts the top, bottom and side margins useful for creating bound documents or punching holes for filing.

(3) Information sharing and paper reducing scanning

In addition to photos and illustrations, the scanner is capable of high resolution scanning from a 600dpi optical resolution up to 4800dpi (using scanner driver) to clearly scan handwritten forms prone to fading.

Scanned data can be converted into various formats to be sent via email or to be saved on an USB memory device. PDF, JPEG, TIFF, M-TIFF and XPS are supported and format can be selected according to use. There are five "Scan to" functions handy for sharing information and reducing paper usage.

- Scan to Email: Scanned data can be sent via email directly from the MC860 Series.
- Scan to USB Memory: Scanned data is saved directly to an USB memory device.
- Scan to Local PC: Scanned data is saved to an USB connected PC.
- Scan to Network PC: Scanned data is saved directly to a PC on the network.
- Scan to Remote PC: Scan command is sent to MC860 from an USB connected PC.

For example, if sales slips or daily reports are normally sent by fax, "Scan to Email" can be used to send documents in the same manner as sending a fax, and in the process eliminate communication charges associated with the fax. Another example is meeting minutes written on a copyboard. If hardcopies are being made for distribution to all the participants, the use of "Scan to Email" or "Scan to Network PC" will eliminate the need to make multiple copies and hand delivering them. Paper use will be reduced as well. Old documents occupying cabinets can be problem if they cannot be discarded. "Scan to Network PC" will be helpful in this situation. Large volumes of documents can be digitized and stored on a shared server. This will lead to efficient information sharing and effective use of office space.

Filing software, "PaperPortSEVer11", comes standard with the MC860 Series. This software displays thumbnails

of the scanned images, and can be used to crop and make color corrections to the images for use in wide range of applications.

(4) Paperless fax

Fax supports A3 documents, and with Super G3 33.6kbps modem speed, A4 documents can be transmitted fast at about two seconds per page, which helps to reduce communication costs. There is a feature that allows documents created on a PC to be faxed directly without the need to print out the documents. This eliminates papers that were printed out just for faxing. The address book can perform Kanji conversions, and up to 500 of the most frequently called numbers can be stored and recalled with a single touch on the touch-pad for a smooth fax operation. There are three destination checking features that safeguards sensitive information from being transmitted to a wrongly dialed number.

- ID check feature: Last four digits of the dialed fax number and number registered in the receiver's fax machine are compared, and fax is transmitted only if they match.
- Broadcast destination check feature: When broadcast faxing, all destinations can be confirmed to prevent transmission errors.
- Double dialing feature: Fax number is dialed twice. If number dialed the second time does not match the initially dialed number, fax is not sent preventing transmission to wrongly dialed number.

Additional features include the ability to store incoming faxes in memory if they cannot be printed due to lack of paper or paper jam, and automatically print faxes from memory once the problem is corrected. Besides storing faxes in internal memory, the MC860 Series can forward received faxes to a specified email address or to a folder on a file server in PDF format. This way, the faxes can be read on the PC and easily saved in a paperless fashion.

The contents of all faxes sent and received can also be saved in PDF format to a folder on the file server making it simple to keep a history of all exchanged faxes.

(5) User friendly control panel

The control panel (**Photo 4**) utilizes a large 5.8-inch touch panel that is easy to read and operate. Copying and other settings can be accomplished smoothly by simply following the instructions that appear on the screen. The alphabetically arranged touch screen allows character entries and Kanji conversion/input is supported as well, so registering speed-dials are quick.



Photo 4. MC860 Series Control Panel

Frequently used functions can be allocated to one of the programmable keys on the touch screen. For example, if “Aggregate Copy” is allocated to a key, one touch of that key will initiate aggregate copying. Up to five frequently used functions can be displayed on the standby screen allowing those operations to be performed quickly from the standby mode.

Routine operations that are frequently performed on a daily basis can be programmed to a job memory key simplifying complicated operations. For instance, if you routinely reduce multiple B4-sized originals 81% to an A4 before making five sorted copies, all the necessary operations can be assigned to a job memory key, and the task can be performed with a single touch. Job memory key eliminates the trouble of having to push several keys and is convenient when routinely performing the same copying, faxing or scanning tasks.

(6) Security features

Security features include “Access Control” (optional), which limits what functions can be accessed on a user ID basis, and “Secure Erase”, which automatically erases print data stored on hard disk.

(7) Voice prompt feature

Voice prompts (Japanese only) guide users in the operation of the MC860 Series. For example, procedure for registering a speed dial or the need to refill paper is announced verbally together with a message displayed on the panel. It helps first-time users and users not comfortable with equipment to easily operate the MFP. The voice prompt can be switched between “auto” and “manual”. In manual mode, if the “voice prompt key” is flashing, the key can be pressed to play the prompt for guidance.

Conclusion

The “MC860 Series” A3 business color MFPs were positioned as a strategic product from its planning stage. Although designed with space saving in mind, the MFPs are guaranteed to be reliable and durable. In fact the MFPs are part of the “COREFIDO®*1” Series lineup that provides a long “five-year warranty”. This ensures the MFPs will provide uninterrupted performance and aid in the creation of a comfortable office environment. We will continue with compacting the design and work to provide MFPs that are easy to use, easy to operate and further improve office comfort. ◆◆

References

- 1) IDC, “Worldwide Quarterly Hardcopy Peripherals Tracker”, 2101Q1

Authors

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TIP (Glossary)

Energy Star

Electrical power savings program promoted by the U.S. Environmental Protection Agency (EPA).

RoHS Directive

Directive mandated by the European Union (EU) restricting the use of certain hazardous substances in electrical and electronic equipment.

Eco Mark

Logo attached to products that are certified to help preserve the environment.

Law on Promoting Green Purchasing

Law requiring state agencies to purchase goods determined to be environmentally friendly.

Continuous print speed

When printing continuously, the operation of the printer might be paused or slowed to make temperature and image quality adjustments. When copying continuously, slowdown may also occur depending on the types of originals and the selected copy mode.

*1) COREFIDO is a registered trademark of OKI Data Corporation.