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INSIDE ...

Hardcopy Vendor Stock Prices Recover from COVID Dip

But Gaps Remain Between the Best and Worst Performers as Fundamental Challenges Are Unsolved

As we have said several times over the past fifteen months, the prices for shares of publicly-traded hardcopy vendors can be an important — albeit imperfect — indicator of how those companies are perceived to be performing in the global economy, particularly in the face of the COVID-19 pandemic.

The good news this month is that the average share price for the fifteen public companies in the global hardcopy industry at the end of June 2021 had staged a full recovery from where that average price had been at the end of 2019. That was when the first cases of what was not yet even called COVID-19 were first being detected in China.

However, as is often the case, the devil is in the details. And in this case, one's assessment of how well the stock prices of individual hardcopy vendors have performed — on their own and in relation to major national stock market indexes — depends very significantly on the specific time period one selects.

In addition, there is a whole lot of diversity across these hardcopy companies when it comes to their individual stock price performance. And those differences vary, depending on the time period one uses for these comparisons. But at least in late June, there was more good news than bad news.

The Big Picture. We compared the share prices for fifteen printer vendors individually and as a group. We specifically compared their stock prices on the last trading day in June 2021 against their stock prices for four periods of time, specifically: (1) at the end of 2018, when the global economy was generally strong and well before there was an

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Kofax Acquires PSIGEN But a Rationale Remains Elusive

Since reemerging as a pure-play software company in 2011 — minus that brief period from 2015 to 2017 when it was owned by Lexmark and then Ninestar — Kofax has pursued more than a dozen acquisitions to obtain technologies, expand its customer base, and grow its revenue and profit. So it was not that surprising to see Kofax announce it had acquired PSIGEN on June 2. But what has been surprising is figuring out how buying PSIGEN actually helps Kofax.

KOFAX PSIGEN software inc.

In large part, this is because Kofax has said nothing beyond the brief boilerplate it included in its press release. It is not surprising that Kofax did not discuss the price or financial impact of the purchase. It also did not provide any metrics regarding PSIGEN's size or financial performance. But because Kofax is among the largest document capture and MFP software vendors, this deal warrants a deeper dive.

It does not help matters that Kofax has relied on fairly

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Toshiba Accused of "World's Worst Corporate Scandal"

The circumstances surrounding the future ownership and direction of Toshiba Corporation — and by implication Toshiba TEC and that company's MFP-related sales subsidiaries around the world — continued to change and generate more concern in June. As we have noted previously, while Toshiba TEC is a separately listed public company in Japan, it is still a Toshiba group company. And Toshiba Corporation owns a controlling 50% of Toshiba TEC's shares. So the fates of the two companies are inextricably linked.

It is also worth reiterating that Toshiba TEC in May did a complete about-face when it came to portraying the future of its hardcopy business in the context of its new Mid-Term

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COMMENT

"Duty Doodie"

You know that feeling you get when you step in something "bad" but you don't want to look at the bottom of your shoe? That's how I feel when printer vendors mention duty cycle ratings. It's like *"Why didn't I look where I was going. Now I've stepped in it, and I have to clean up this mess!"*

The latest one I stepped in was Brother's new INKvestment series. The $89 and $99 AIOs have a 2,500-page monthly duty cycle. But the $149 and $199 models — which share the same basic industrial design — are rated at 30,000 pages per month. I don't care how much the pricier models might have been hardened, beefed up or whatever. No one can convince me it translates into a monthly duty cycle that's a dozen times higher. And if that weren't enough, the "recommended monthly print volume" ranges from less than 1% of the duty cycle, on up to 40% of that figure.

I really don't want to pick on Brother. Because every vendor does it, and they're all equally to blame for playing this silly game. Yeah, I know I'm not the first person to address this topic, and I won't be the last. But at a time when lots of people are buying personal AIOs or home printers — and in an era when companies are justifiably skeptical of what technology vendors say — why do we tolerate this embarrassing charade?

Vendors and others in the hardcopy industry like to portray duty cycle in quasi-scientific terms. You know, it's some precise, engineering-driven examination of how long a machine in a single month can produce good quality output before certain nonreplaceable parts crap out. But the whole thing is smoke and mirrors, at least in terms of giving buyers any useful information.

Start with the fact that there are absolutely no standards for calculating duty cycle. It's like when every vendor used to make claims about how many pages one could get from an ink or toner cartridge. At least the hardcopy industry finally developed ISO standards to guide those calculations. And that was over a dozen years ago. In contrast, the ongoing lack of standards for determining duty cycle means that numbers from different vendors can't be accurately compared. Moreover, the people that make and sell MFPs and printers tacitly acknowledge this fact.

But these same folks have a fallback position. They'll claim that duty cycle ratings are at least a decent way for customers to select the right model within a single company's product line. But that's just more doodie. Almost every print device made today is based on a platform that's used to make several additional models with different speeds. Look at Xerox. It's mainstay AltaLink color MFP lineup includes five models with speeds that span 40 ppm. The 30 ppm machine has a 90,000-page duty cycle, and the 70 ppm product has a 300,000-page duty cycle. But under the hood, they're basically the same.

Some vendors try to avoid stepping in it by using other measures alongside or instead of duty cycle, but the issues are all the same. Look at Ricoh. Its new IM series of A3 monochrome MFPs have speeds that span 35 ppm. The "maximum monthly volume" is 15,000 pages on the 25 ppm MFP, and it's 50,000 pages on the 60 ppm machine.

And there are other anomalies that show these monthly endurance measures to be even more illogical, misleading or useless.

Try this one on for size. All things being equal — as they very often are with printers or MFP s that share a platform — why shouldn't the faster model actually have a lower duty cycle than the slower one? After all, the same parts are being pushed much harder and faster. Ask yourself this. Is a car going to last longer when driven at 50 or 95 miles per hour?

Here's another thought puzzle. Is an office MFP with a 100,000-page duty cycle more likely to last if it prints 105,000 pages in a single month and then 20,000 pages every other month, or if it prints 95,000 pages month after month?

Or how about this one? If the duty cycle reflects the fact that nonreplaceable parts wear out, isn't the cumulative number of printed pages over the life of a machine going to be more important than how much is printed in a single month?

Even more telling is how hardcopy vendors actually utilize these duty cycle, maximum monthly, or recommended monthly figures. It's all marketing! I'm not aware of any vendor, dealer, branch or reseller that links these figures to a warranty. The numbers are purely a customer inducement *("See how sturdy my nice machine is!")*. The numbers are no guarantee *("I promise my machine will perform great up to this number!")*. Some sellers may include a page limit in a service contract, but no one stands behind the duty cycle.

What often ends up saving hardcopy vendors and their partners is that most personal and office print devices are never ever operates anywhere near their "duty cycle." In fact, the A3 office MFP business model pretty much depends on the idea of selling the customer a faster, bigger, better machine than they really need.

Regardless, isn't it time that printer and MFP vendors clean up this mess? Develop a standard or kill it. It's their duty. ... Or should I say doodie?

Brian R. Bissett

Publisher & Editor

At a time when lots more people are having to buy personal AIOs or home printers — and in an era when individuals and companies are justifiably skeptical of what technology vendors tell them — why is it that we tolerate this embarrassing charade? It's been an open secret for decades that monthly duty cycle, maximum monthly print volume, and recommended monthly print volume figures are pretty much a sham. Yet we keep stepping in it.

Konica Minolta Sells Ten US Branches to DEX and Says That's All

BUSINESS

In a somewhat anticlimactic press release issued on June 8, Konica Minolta Business Solutions USA announced "its final transfer of select sales offices to its independent dealer channel." Specifically, the company stated DEX Imaging "will be acquiring a select number of Konica Minolta sales locations." That number turned out to be ten locations.

Back on April 1, Konica Minolta first announced it would "transfer select sales offices to its independent dealer channel." And it emphasized how this was a strategic change that would "accelerate its business transformation and execute on its promise to deliver exceptional value creation for its customers and independent dealer channel." In retrospect, Konica Minolta created an expectation that these transfers would be more numerous and more transformative.

In reality, Konica Minolta over the course of ten weeks transferred a total of 19 direct sales locations to three large dealers. In addition to the ten locations going to Tampa-based DEX, six locations went to Denver-based All Copy, and three locations went to Portland-based Pacific Office Automation.

After all of this, Konica Minolta has retained more than one hundred direct branches across North America that provide it "with reach in all major markets." So there has been roughly a 15% reduction in the total number of North American branch locations Konica Minolta had at the end of March 2021. Once again, the company said "the transfer of assets ultimately ensures a balanced coverage model focused on building an industry-leading customer experience."

Konica Minolta did not provide a list of the locations DEX was getting, but Dex did in its own announcement on June 8. Those ten locations accounted for more than half of the total branch locations Konica Minolta has transferred.

Specifically, Dex has obtained locations in Raleigh and Greensboro, North Carolina; Charleston and Greenville, South Carolina; Corpus Christi and Longview, Texas; Pensacola and Tallahassee, Florida; Shreveport, Louisiana; and Mobile, Alabama.

DEX already has about 35 locations spread across eight states, and those locations generated more than $350 million in revenue in 2020. The new locations in the Carolinas and Florida expand DEX's presence in those states; and the locations in Texas, Louisiana and Alabama take DEX into adjacent states. As a result, DEX will likely regain its title as the largest US office equipment dealer by revenue. But DEX is not really an independent office equipment dealer.

DEX was acquired more than two years ago by Staples, reportedly for somewhere in the neighborhood of $400 million *(The MFP Report, Feb 19)*. At the time, DEX's revenue was estimated to be around $300 million. And for a company that for years had been acquiring dealers, these latest transfers from Konica Minolta represent DEX's first purchases since it was acquired by Staples over two years ago.

Ironically, this expansion is taking place at the same time Staples is seeking to buy Office Depot's retail locations across the US *(see story below)*. Ultimately, both transactions will be funded by Sycamore Partners, the private equity firm that bought Staples in 2017 for $6.9 billion.

DEX imaging

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Staples Makes 3rd Attempt in 2021 to Buy All or Some of Office Depot

The efforts by Staples to buy some or all of rival Office Depot continued in June. Specifically, ODP Corporation *(the parent of Office Depot)* confirmed on June 4 it had received an offer from USR Parent *(the parent of Staples)* to purchase Office Depot's consumer business for $1 billion in cash. ODP said its board was "carefully reviewing Staples' proposal," but it did not indicate when it might make a decision.

ODP in January turned down a $2.1 billion offer from Staples to buy the entire company. And in March, Office Depot rejected a subsequent offer to buy its consumer business at a price that was to be negotiated. Then on May 5, ODP announced its board had approved a plan to split into two independent publicly traded companies in the first half of 2022. Both companies will be owned by ODP shareholders. Of course, this plan presumes that Office Depot will first be able to sell off its struggling CompuCom IT services unit.

It is worth noting that the US Federal Trade Commission *(FTC)* has already scuttled two previous attempts by Staples to buy all of ODP back in 1997 and then again in 2016. It is also worth mentioning that Staples, under the management of Sycamore Partners, has already separated its retail stores and online business from its B2B-focused business, which includes the DEX Imaging unit it acquired in early 2019.

The consumer business that Staples wants to buy for $1 billion consists of approximately 1,150 Office Depot and OfficeMax stores across the US, plus the *OfficeDepot.com* online business. To put this in context, Staples has approximately 1,500 stores in the US, Canada and the UK. Meanwhile, a still-to-be-named "NewCo" would encompass Office Depot's Business Solutions Division contract supplies business, the Grant & Toy online business in Canada, and 60 independent regional office supply distribution businesses.

In 2020, the consumer business generated 42.9% of Office Depot's revenue *($4.166 billion)*; the NewCo portion produced 48.2% of its revenue *($4.680 billion)*; and CompuCom — which Staples purchased in 2017 for approximately $1 billion — accounted for the other 8.8% *($854 million)*. Over the past couple of years *(i.e., 2020 vs. 2018)*, Office Depot's total revenue fell 11.8%, reflecting a 10.2% decrease in the consumer business, versus an 11.5% decline in the NewCo business and a 21.7% drop in CompuCom's sales.

And as if all of this were not enough, Staples board announced on June 17 that the company's CEO would be stepping down "by mutual agreement."

Staples

The Office Depot consumer business that Staples now wants to buy generated 43% of Office Depot's revenue last year. That revenue was down more than 10% from 2018.

Ricoh Formally Exits Its Long Troubled Relationship with Ricoh India

BUSINESS

On June 16, Ricoh announced in Japan that it had sold all of its shares in the former Ricoh India on June 9, ending its former "capital relationship" with the once high-flying company that collapsed in scandal five years ago.

Ricoh India had already ceased to be part of Ricoh's consolidated financial results in May 2018, and Ricoh cut off all further funding for Ricoh India in October 2018. However, Ricoh had already recorded losses for Ricoh India in FY2018 that totalled ¥44.9 billion, or $409 million at the current exchange rate. This latest move will have no impact on Ricoh's current or ongoing financial results.

Ricoh India was founded in 1993, and it was reincorporated as a public company in India in 1998. Ricoh owned 76.3% of the shares, and the rest were traded on the Bombay Stock Exchange. As recently as September 2014, Ricoh had pointed to Ricoh India as a huge success story. In the four years from FY2010 to FY2014, Ricoh India's annual revenue growth averaged 53%, going from Rs2.966 billion, to Rs16.378 billion. The FY2014 figure was then equivalent to $270 million. But it earned a slim profit of just Rs339 million, or $5.6 million. At the same time, the company's debt went from zero to Rs7.015 billion, or $116 million.

In the first quarter of FY2015 *(April-June 2015)*, Ricoh India reported its revenue had nearly doubled from the year before, with 72% of that revenue coming from IT services. Ricoh India's stock reflected that growth; its share price rose over twenty-fold from August 2013 to August 2015.

Then things fell apart. For the next two quarters *(July-December 2015)*, Ricoh India did not release any quarterly financial results. In the spring of 2016, several top Ricoh India executives resigned, and it soon became clear that Ricoh India had been "cooking the books" for many years. Then in January 2018, the company filed for insolvency in India.

In the four years from FY2014 to FY2018, Ricoh India's revenue fell 65% to Rs5.778 billion, or $87 million. And Ricoh wracked up a combined four-year loss of Rs24.674 billion, or $371 million. In other words, Ricoh India lost more than four times what it took in from FY2014 to FY2018.

In February 2019, what remained of Ricoh India was acquired by a company called Minosha India Limited, and the former Ricoh India has operated under that name since then. In June, Ricoh transferred all of its Ricoh India shares to Minosha. Just last month, Minosha told the Indian press it has relatively conservative goals for growing its business.

Minosha is believed to be currently generating about $25 million in annual revenue. That is just 10% of what the old Ricoh India claimed to be doing back in FY2015. The company has said it expects to attain the equivalent of $41 million in annual revenue two and one-half years from now. And instead of focusing on IT services, hardcopy is the main thrust these days at Minosha. That includes providing service for Ricoh global accounts that have MFPs in India.

Minosha is believed to be generating about $25 million in annual revenue, which is about 10% of what Ricoh India claimed to be doing back in FY2015.

Xerox Is Icahn's #7 Holding

According to Carl Icahn's most recent filings with the US Securities & Exchange Commission (SEC), Xerox was Carl Icahn's seventh most valuable stock holding as of March 31. As of that date, Icahn owned some 28,769,235 shares of Xerox stock. That was 2.93% of Icahn's stock holdings. His Xerox investment was worth $698 million on March 31, although that valuation had fallen slightly to $684 million on June 30. Icahn's largest holding on March 31 was Occidental Petroleum. Those shares were worth $2.286 billion, accounting for 9.60% of Icahn's portfolio. The rest of Icahn's top ten stock investments were in Newell Brands, Cheniere Energy, Bausch Health Companies, Navistar International, FirstEnergy, Cloudera, and Herc holdings. Together, Icahn's shares in these ten companies accounted for 43% of his total stock holdings.

Ricoh & Kyocera Become Partners

In parallel press releases issued on June 29, Kyocera Document Solutions America *(KDA)* and Ricoh USA announced a partnership that will enable Ricoh Business Solutions *(RBS)* to sell the 150 ppm TASKalfa Pro 15000c color inkjet press that Kyocera shipped in the fall of 2019.

There are a few caveats regarding this arrangement that are worth emphasizing. For starters, the partnership is limited to direct sales by RBS in the US. Ricoh dealers will not have access to the press, no doubt so as not to upset Kyocera dealers who generate over 80% of KDA's revenue. It is also worth remembering that RBS is a much smaller organization than it was just five years ago, before Ricoh sold a substantial portion of its direct accounts to twenty of its largest US dealers.

Also, Ricoh is selling the 15000c as a Kyocera product; this is not an OEM deal. By the way, KDA is no longer selling the 96, 110 and 136 ppm TASKalfa 9600, 11100 and 13600 B&W production MFPs it sourced from Ricoh in July 2018. They were the first production devices KDA sold. They were based on the PRO 8200s, 8210s and 8220s that Ricoh launched in 2016. Ricoh replaced them with the updated but same speed PRO 8300s, 8310s and 8320s in 2019, and KDA did not pick up OEM versions of those products.

Although the TASKalfa 15000c is Kyocera's only digital press, Ricoh has a broad range of toner and inkjet production printers. The issue is that, while Ricoh has three continuous feed production inkjet printers of its own, it does not have a cutsheet production inkjet device. So the TASKalfa Pro 15000c will help Ricoh compete for transactional and direct mail printing business. At the same time, the TASKalfa Pro 15000c will have to compete for attention among RBS sales people, who are generally more inclined to sell any of several Ricoh-made and Ricoh-branded devices.

While Ricoh has three continuous feed production inkjet printers, it does not have its own cutsheet production inkjet device. So the 15000c will help Ricoh compete for transactional and direct mail printing business.

BUSINESS

Germany's Paperdoo Adds New Features to Print-and-Deliver Service

Paperdoo, a German online ad hoc printing service that we wrote about last fall *(The MFP Report, Nov 20)*, continues to persevere and has added some new features.

To recap, Paperdoo debuted in July 2020. It is intended foremost for people at home who need occasional printed pages but do not need them right away. The service is provided by a 21-year old private German company called A&O Fischer that is based near Hamburg. A&O Fischer calls itself one of Germany's most successful online hybrid letter mailers. Everything the company prints — including Paperdoo jobs — is done on Canon VarioPrint cutsheet inkjet presses.

Paperdoo's marketing message is "Printing without a Printer," with the added pitch that its online printing service is "cheap, clean and sustainable." A customer creates an account, provides credit card information, and submits PDF or JPEG files *(up to 100 MB)* from any device with a browser, Paperdoo then prints and delivers the documents in Germany via Deutsche Post or DHL, depending on the number of pages.

With Paperdoo, printing an A4 monochrome page costs €0.5 *(6¢)*, an A4 color page is €0.15 *(18¢)*, and a duplex color or B&W page costs the same as a single-sided page. Hole-punching and stapling are each available for €0.50 *(59¢)* per 100 sheets, and both options can be combined for a fee of €1.00 *($1.18)* per document.

Shipping costs are based on the number of pages. Smaller jobs are sent via mail, starting at €1.79 *($2.12)* for 1-7 sheets in a letter-size envelope; up to 90 sheets in a flat envelope is €2.99 *($3.54)*; and 91 to 180 sheets in a flat envelope cost €4.99 *($5.91)*. Larger shipments are sent via DHL. Between 181 and 550 sheets are €8.99 *($10.65)*, and from 550 to 6,000 sheets costs €11.99 *($14.20)*.

On June 8, Paperdoo announced three enhancements to its printing service. First, a customer can use a new guest mode to submit a print job without having a Paperdoo account, although such users cannot preview their orders. Second, Paperdoo is now offering free shipping via DHL in 1-3 days within Germany for any orders of at least €5 *($5.92)*. And third, Paperdoo now automatically scales all oversize documents down to A4-size for printing.

Paperdoo debuted in July 2020, foremost for people at home who need occasional printed pages but don't need them right away. The service is provided by a 21-year old private German company called A&O Fischer that calls itself one of Germany's most successful online hybrid letter mailers.

Xerox Buys 1st US Dealer in 2 Years

Xerox announced on June 2 it had purchased Document Systems, a midsize multibrand office equipment dealer in Southern California. While Xerox over the past 18 months has acquired three dealers in the UK and two in Canada, this is its first purchase of a dealer in the US since June 2019.

Document Systems was founded in 1994. It has offices in Burbank, La Mirada and Oxnard that serve Los Angeles, Ventura and Santa Barbara counties. The Burbank location was the former Copy R Office Solutions, which Document Solutions purchased in 2017. Document Solutions today is believed to have between 40 and 50 employees, and about $7 to $9 million in revenue. The company has been primarily selling Canon, Ricoh, HP and Lexmark hardware, but those relationships are likely to end rather soon. The company also sells software from Kofax, NT-ware and Therefore.

Document Systems will become part of Xerox Business Solutions, which already has a very strong presence in southern California from Xerox's long-time direct sales offices in the region, from former Global Imaging Systems locations, and from its acquisition of agent Mr. Copy in 2009.

Ransomware Attack Hits Fujifilm

Fujifilm announced on June 4 that it had experienced a ransomware attack on one of its networks in Japan on June 1. The company said it had shut down all networks and servers in Japan on June 2, while it investigated the extent and scale of the attack. Particularly affected were systems related to reception of inquiries, orders and shipments of products. But Fujifilm Business Innovation made a point of stating that its specific operations had not been affected. Normal operations were fully restored by June 14, and Fujifilm said there was no evidence any company, customer or partner data had bene stolen.

Fujifilm refused to say how much ransom the attacker had sought, and the company was adamant that it had not paid any ransom. Subsequent press reports indicated that some Fujifilm systems had been infected back in May by the 13-year old Qbot trojan virus, which is often launched via phishing. The creators of Qbot have a long history of partnering with ransomware operators, including a Russia-based ransomware-as-a-service group called REvil.

Epson Makes Tiny IT Investment

Epson announced on June 11 it had entered into a strategic agreement and acquired a minority stake in a relatively small but publicly traded Japanese company called Hyper, which describes itself as an "IT services business." Hyper also sells computers, software and unnamed peripherals to corporate customers in Japan. The 31-year old company is based in Tokyo, with multiple offices across the country. Hyper reported it had 212 employees and over 5,000 customers at the end of 2020. The company also reported revenue last year of ¥20.7 billion, or approximately $189 million, with net income of ¥185.3 million, or about $1.7 million.

Hyper had a market cap just prior to the Epson news of ¥5.120 billion, or roughly $47 million. So the 7.13% of Hyper that Epson has acquired cost it just $3.5 million. That tiny size makes this investment and relationship seem quite odd. Nonetheless, Epson said its goal with Hyper is to expand sales of office products, and to become more of a one-stop solutions providers for business customers in Japan.

Epson has acquired a bit over 7% of Hyper, a publicly traded IT services company that reported $189 million in revenue last year.

Toshiba: Accused of "World's Worst Corporate Scandal"

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BUSINESS

Business Plan *(MTBP)* that covers FY2021 to FY2023 *(i.e., April 2021 to March 2024)*. The MTBP did not mention the doubts Toshiba and Toshiba TEC had expressed in 2020 about the "ongoing viability" of the hardcopy business.

Thee MTBP did not reiterate the previously stated need to "investigate every possible strategic option, including an alliance with another enterprise, in response to market changes." And just last fall, Toshiba Corporation had said Toshiba TEC was "considering and implementing all strategic measures, including alliances with external companies."

So keep that in mind. But for now, we go back to Toshiba Corporation's never-ending woes. Basically, a half-dozen or more years of high-level fraud and poor executive management have left Toshiba with a weakened stock price. So it was not surprising when in early April Toshiba received an unsolicited $20 billion takeover proposal from CVC Capital Partners, a Luxembourg-based private equity firm. This was at a time when Toshiba's market cap was around $16 billion. The idea was for CVC to take Toshiba private, while retaining its current management. That included Toshiba's president, who previously headed CVC's Japan operations.

Then in the space of just two weeks, that same Toshiba president stepped down after three years in what was described as a "boardroom coup" by Toshiba traditionalists seeking to block a deal with CVC. That led CVC to withdraw its offer. In turn, that caused speculation that other private equity firms — including KKR, Brookfield Asset Management, and Bain Capital — might want to take Toshiba private.

In addition, Singapore-based Effissimo Capital Management strongly encouraged Toshiba to conduct a "strategic review" and a "full and fair sales process" in order to rebuild trust with investors. Effissimo owns 9.9% of Toshiba's shares, making it the company's largest shareholder.

Effissimo and other foreign activist shareholders have exerted growing pressure on Toshiba since the company sold $5.4 billion in new shares to foreign hedge funds after the 2017 crisis in Toshiba's US nuclear power plan unit.

Fast forward to June 10. That is when an independent report voted on by shareholders in March was released. The report examined accusations that senior Toshiba executives and top Japanese government officials last year collaborated to pressure Toshiba's activist investors. The report was prepared by three lawyers from three Japanese law firms.

In a blockbuster conclusion, the report found that Toshiba management had "devised a plan to effectively prevent shareholders from exercising their shareholder proposal rights and voting rights" by putting undue influence on Effissimo, the Harvard Fund, and 3D Investment Partners. The report went on to say that some of Toshiba's actions raised "suspicions of violations of laws and regulations in many places." A top Toshiba shareholder anonymously called all of this "the world's worst corporate scandal in a decade."

The report specifically stated that Yoshihide Suga — who was chief cabinet secretary at the start of 2020 and then became prime minister in September 2020 — had encouraged Toshiba management to put pressure on its activist investors. Suga was reported to have told Toshiba executives his government would derail foreign activist investors by aggressively enforcing Japan's strict foreign ownership rules. However, Suga has denied these allegations.

In addition, the investigative report found that Toshiba had sought support from Japan's Ministry or Economy, Trade and Industry *(METI)* ahead of its annual general meeting last July to counter those same activist investors at that meeting. In particular, Toshiba had sought METI's help to pressure Effissimo to drop its nominations of three new candidates to the board of directors. In a key e-mail, a Toshiba executive said, "We will ask METI to beat them [Effissimo] up for a while."

An independent report was released on June 10 that examined whether senior Toshiba executives and top Japanese government officials last year had to pressure activist Toshiba investors. The report said Toshiba executives had "devised a plan to effectively prevent shareholders from exercising their shareholder proposal right and voting rights." The report went on to say that some of Toshiba's actions raised "suspicions of violations of laws and regulations in many places." A top Toshiba shareholder called all of this "the world's worst corporate scandal in a decade."

The revelations in the investigative report led to a call on June 13 by 3D Investment Partners — Toshiba's second largest investor — for the company's chairman and two board members to resign. Chairman Nagayama had been in that role only since July 2020. On June 18, Effissimo also asked Nagayama to resign, calling Toshiba's governance "dysfunctional" and saying the board had been "ineffective."

At a news conference on June 14, Chairman Nagayama said he would not resign and instead would "focus on fulfilling the duties that must be fulfilled." He apologized for "lapses in governance," but he blamed the former CEO. He also said Toshiba would drop its nominations of two directors, and two executives would resign. The chairman added that Toshiba would call an extraordinary general meeting of its board to hasten plans for a corporate-wide strategic review. And he noted that Toshiba had not received any offers from private equity funds since the CVC deal had collapsed in April.

Nagayama on June 21 pledged he would be "an agent of change, not a protector of the status quo." But it was too little, too late. On June 25, Chairman Nagayama lost his bid for reelection as chairman, with 56% of votes going against him. Voting participation was 80%, the highest in more than a decade, with heavy voting by overseas investors.

Finally, on the last day of June, a somewhat chastened Toshiba board voted to buy back up to six percent of the company's outstanding shares before the end of 2021. That would be around ¥100 billion *(or $913 million)* in stock.

Just two years ago, Toshiba had announced a ¥700 billion *($6.3 billion at the time)* share repurchase that was funded from the $18 billion it had received for the sale of its memory chip business to a consortium led by US private equity firm Bain Capital.

Toshiba also said on June 30 it would pay a special ¥50 billion *($456 million)* dividend to shareholders.

However, this undoubtedly will not be the end of this sad saga for Toshiba Corporation ... or for Toshiba TEC.

HP CEO Offers More Details on the Strong State of its Printing Business

BUSINESS

HP CEO Enrique Lores shared some interesting insights into HP's printer business while speaking at the Alliance Bernstein 37th Annual Strategic Decisions Conference on June 3. Lores was one of more than 170 major company CEOs and executives who presented at the online conference.

For starters, Lores had a decidedly positive spin on how COVID-19 has affected his company, stating "so clearly, the pandemic is having a positive short- and long-term impact on HP's business." He explained that "this is because HP is at the heart hybrid work, clearly enabling people to work from home, enabling students to learn from home."

In addition to seeing its sales of printers and PC increase dramatically, HP said it has benefited a lot from spending much less on promotions and not needing to discount prices for its products. Lores said he expected HP to be able to maintain the "high prices" it enjoyed in the first half of the fiscal year *(November 2020 to April 2021)* through the second half of FY2021 *(May to October)*. In the February-to-April quarter, HP saw its average selling prices rise 8% for PCs and 22% for printers, although some of that also reflected a mix shift toward higher-priced devices.

At the same time, HP believes its costs will rise in the second half of FY2021 due to higher prices for components and for logistics. But Lores stated HP will be able "in the medium term" to pass those higher costs on to customers in the form of higher prices. This is made even more likely since HP has been experiencing an order backlog for both PCs and printers. Lores variously said the backlog was "elevated," "very significant," and "the highest we have had." And while the backlog in printers is "high," it is lower than for PCs.

Lores addressed how the pandemic has changed the trajectory of HP's printing supplies business. He explained that supplies revenue in the second quarter was "basically flat with 2019," whereas supplies revenue before the pandemic "was generally going down low single-digits per year."

He attributed the change to two factors. In home printing, HP has "seen better performance than we were projecting before the pandemic." And Lores pointed to higher prices for its supplies. He added, "we have not promoted, we have not discounted, and we have been able to hold share."

Lores indicated that three factors have helped HP's printing supplies business. First, the pandemic shifted a lot of business printing from offices to homes. Second, the price per page for home inkjet and laser printers is higher than for office printers. And by implication, the profit per page is also higher. And third, HP has a much higher share of the home printer market than it has in the office printer market.

Interestingly, Lores said HP plans "to depend less and less on the profitability of the supplies business going before." HP does not break out profits for its printers versus its supplies. However, those supplies generated almost 63% of HP's Printing unit revenue in fiscal Q2, and 21% of the company's total revenue in the quarter. And those supplies presumably have a higher profit margin than just about anything else HP sells in any significant volume.

Basically, HP seems willing to sacrifice some margin on its printer supplies in exchange for getting a greater share of the supplies annuity revenue generated by its printers. Lores linked this dynamic to two initiatives underway ay HP.

First, there is HP's growing supplies subscription business. Instant Ink subscriptions were up 7% in fiscal Q2, reaching 9.7 million users worldwide. That was basically double the number of subscribers HP had two years earlier. The US continues to lead, with over 10% of HP's inkjet printer installed base in the US using Instant Ink in recent quarters.

Lores also said HP is trying to replicate its success with Instant Ink in its new HP+ program, which is now available in 35 countries. He said the goal is "to complete the rollout of the portfolio with the next 12 or 18 months maximum to really have the full transactional portfolio" of HP+ models.

Second, Lores pointed to growing adoption of its "big ink and big toner models — primarily HP's Ink Tank and Neverstop Laser models — that are designed especially for emerging countries." He said over the past twelve months HP had experienced "very fast growth" with those products.

Lores was asked to comment on HP's push into the A3 market, which the company has not talked about a lot for some time now. He responded that "A3 is a big part of our strategy to grow in the contractual office space, which is a big part of the market where HP is underrepresented." He said HP needed its A3 product portfolio in order "to be a relevant player in the contractual space." Lores explained that HP had not talked much about the A3 business in the past two or three quarters "because that overall business, that overall market has been really impacted by COVID-19." He added that pages in that segment have declined around 25%.

Lores continued, stating that HP had seen two important trends as regards A3 office MFPs. First, Lores said that "as companies redesign their offices post-COVID, we see a change from A3 printers to A4 printers, less centralized, more decentralized, smaller printers." He added, "This is a change that clearly helps us." Second, Lores explained that "many

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> *Something that no other CEO of a hardcopy company is probably saying these days ... "So clearly, the pandemic is having a positive short- and long-term impact on HP's business." He said the pandemic shifted a lot of business printing from offices to homes, where the price and profit per page is higher and where HP has a much higher market share.*

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Kofax: PSIGEN Becomes First Acquisition in Two Years ➲ ... from page 1

fluffy but anodyne statements. Kofax said PSIGEN "adds to our existing document capture software and solutions, further extends our leadership position in the capture market, adds content management software and solutions to our product portfolio, increases our customer and partner ecosystem, and enhances our intelligent automation platform."

So Just Who Is PSIGEN?

PSIGEN Software calls itself "a global leader in digitalization" that specializes in "high-performance document capture, automation, workflow and management solutions." The company was founded in 1995 in Boca Raton, Florida, but its headquarters today is in Huntsville, Alabama.

PSIGEN's emphasis has long been on document scanning, e-mail document capture, content extraction, document classification, and workflow automation with its server-based PSIcapture product, which is currently Version 7.7. There was also a time when PSIGEN offered specialized software to enable document scanning for Microsoft SharePoint.

As with many document capture solutions — including Kofax's long-standing Capture and Transformation applications — PSIcapture encompasses multiple modules and components, along with per-page charges that vary with the number of pages being scanned. PSIcapture also has more than 60 connectors *(called "migrations")* that can deliver scanned images and extracted data to various ECM and line-of-business applications. And there is also a quality assurance and manual indexing module called PSIcapture Fusion.

PSIGEN's other solution is PSIsafe, a pretty basic file, document and content management application that is available on-premises and in the cloud. PSIsafe was originally a product known as Safe. It was developed by a small company called Cabinet that PSIGEN bought in 2017 *(The MFP Report, Jan 17)*. Cabinet was a PSIGEN customer, having long used PSIcapture for scanning documents into Safe. Cabinet is PSIGEN's only acquisition. Cabinet was based in Alabama, which explains why PSIGEN moved from Florida.

PSIcapture and PSIsafe are both aimed primarily at mid-size organizations. PSIGEN sells its software through resellers, including general purpose IT VARs, ECM-focused resellers, and a modest number of office equipment dealers. PSIGEN has been saying for several years now that it has 800 resellers. The company's main geographic focus is North America, but it sells overseas as well, often through master distributors such as UpFlow for Australia and the Asia/Pacific region and Elite Document Solutions for the UK.

PSIGEN has for several years reported that it has between 50 and 200 employees, although we believe the specific number is closer to 75 people. Almost five years ago, PSIGEN also said it had 35,000 customers, but we have not seen any more recent figures. Our best estimate is that PSIGEN's revenue is the range of $12 to $16 million.

As points of comparison, Kofax has roughly $500 million in revenue, and the company says it has about 1,900 employees, 850 resellers, and 25,000 customers.

And What's the Fit for Kofax?

PSIGEN is Kofax's first acquisition since completing its $16 million purchase of Top Image Systems two years ago. That deal came right after Kofax spent $400 million to buy Nuance's Document Imaging unit. By our calculation, the Nuance deal cost more than the combined price for all of Kofax's previous acquisitions. Moreover, Kofax has spent

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As with many other document capture solutions — including the long-standing Kofax Capture and Kofax Transformation applications — PSIGEN's PSIcapture solution encompasses multiple modules and components, along with per-scan charges that vary depending on the number of pages. PSIcapture has more than 60 connectors (PSIGEN calls them "migrations") that can deliver scanned images and extracted data to various ECM and line-of-business applications.

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companies are looking for ways to enable their employees to print from home and to make that part of their contractual agreement. Again, HP sees this as a major opportunity.

Lores summarized these trends by adding that "because of the rebalancing between home and office ... the office market is going to be smaller than what we were expecting before the pandemic." He continued, noting that "people will work more from home and, therefore, print less in the office." Conversely, Lores stated that "the home market will be bigger than we were expecting before the pandemic." He concluded that the combination of these two trends "because of the price, margin and share differences that we have" puts HP in a good position. And he noted as well that HP's efforts in industrial printing and 3D printing will help.

Lastly, Lores was asked about whether HP might be interested in acquiring another hardcopy vendor, most particularly Xerox. Lores was predictably noncommittal. He stated that HP continues to believe "there are too many competitors, and he explained that HP also believes "in the contractual office space there will be a consolidation going forward." And he expects that combining two companies will provide an opportunity to drive savings and deliver value.

Continuing, however, Lores highlighted two issues. First, there is the question of what the overall size of the printing market will be after the pandemic. HP is clear that the market will be smaller than it is today, but the question is how much smaller. And second, all of the companies in this space have already cut costs significantly, so it remains to be seen what additional savings are possible in any combination.

Lores concluded, "It's hard to know exactly what will be the value that will be created" by a combination of printer vendors. "But at some point, it probably will make sense."

At the same time, Lores said HP has to look at any such combination in the context of what other acquisitions might make sense for the company in adjacent markets, rather than in one of its core markets. And he noted that HP also has opportunities to invest instead in growth markets like 3D printing or industrial graphic printing. He concluded by noting that HP "is constantly monitoring all these areas."

Kofax: Acquires PSIGEN

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much less than $100 million on every one of its other acquisitions. In fact, Kofax's smallest deal was under $6 million.

Assuming our revenue estimate for PSIGEN is correct, and depending on how profitable PSIGEN may or may not have been, Kofax probably paid somewhere in the range of $20 to $30 million to buy PSIGEN. It is not clear if Kofax funded the deal using its own cash, or if Thoma Bravo — the private equity firm that purchased Kofax from China's Ninestar in 2017 — provided the necessary funds.

Regardless of where the funds came from, buying PSIGEN needs to make financial sense for Kofax, and by implication for Thoma Bravo. Certainly, this acquisition cannot be justified purely as a strategic move. Nor does PSIGEN appear to possess any technology that is crucial to Kofax's ongoing push into intelligent automation, which is the company's spin on robotic process automation *(RPA)*.

If anything, PSIGEN's two applications seem either to duplicate or be irrelevant to Kofax's present and future software business. And with Kofax's estimated annual sales of $500 million, PSIGEN is just a drop in its revenue bucket.

This is where we get stuck when we try to figure out why Kofax has purchased PSIGEN and figure out exactly what this acquisition means for Kofax. This is indeed a case in which a buyer saying less is definitely not better.

All we have to go on is the press release, which lists four reasons why Kofax is buying PSIGEN. First, PSIGEN adds to Kofax's document capture software portfolio, thereby extending its leadership in the capture market. Second, PSIGEN adds content management software to Kofax's product portfolio. Third, PSIcapture and PSIsafe have specific solutions for key vertical markets. And fourth, PSIGEN provides Kofax with additional customers and channel partners. But each of these contentions warrants a deeper look.

Capturing More Capture. It is certainly true that by acquiring PSIGEN, Kofax has gained another document capture solution in the form of PSIcapture. However, the features, capabilities and pricing of PSIcapture appear similar to or below those in Kofax's long-standing Capture and Transformation applications. And to the extent that PSIcapture is a somewhat lower-end capture solution, it would also seem to overlap with Kofax's Nuance-sourced AutoStore software.

Ironically, the document capture software business already went through significant consolidation some years ago. Meanwhile, Kofax has for several years been doing its utmost to downplay its document capture software portfolio as it has aggressively shifted its strategic focus to its TotalAgility and RPA solutions. So why now is Kofax belatedly interested once again in plain old document capture?

This raises bigger questions. Is PSIGEN still a small capture company after all these years because of its management or its products? Was it a business preference? Or did the company lack access to funds to expand? Similarly, why has PSIGEN remained independent in a document capture market that has already consolidated? Was that the owner's personal or professional choice? Or were there legitimate reasons why companies that bought other document capture software firms did not acquire PSIGEN?

Moving into Content Management. Kofax is also correct in saying that PSIsafe takes it into the content management market. But that is a real head-scratcher. In its 35+ years in business, Kofax has had many opportunities to move into the content management business if it wanted to, and it demonstrated zero interest in doing so ... until now.

A consistently logical reason for this reluctance has been the fact that many of Kofax's independent software partners, who buy and sell its document capture and intelligent automation solutions, are themselves in or adjacent to the content management business. So it would be risky for Kofax to compete — or to be perceived as competing — in that market.

Over the past several years, the traditional ECM market has become highly consolidated. And at the same time, traditional ECM vendors are now having to compete with cloud-centric companies like Box and Dropbox. PSIsafe is a small piece of a small company. So one is hard-pressed to see how PSIsafe can provide Kofax with a sufficient base of business to become a credible or successful ECM vendor.

Moreover, if there were such great synergy for Kofax in the ECM market, the logical and readily available solution would be for Thoma Bravo to combine Kofax with its big ECM portfolio company, Hyland. In reality, the exact opposite happened. When Thoma Bravo acquired the Lexmark Enterprise Software unit from Ninestar in 2017, it separated the Kofax and Readsoft captures pieces into the new Kofax, and it put Perceptive and other ECM-related bits into Hyland.

Vertical Specificity. Kofax mentioned that PSIcapture and PSIsafe include very specific "application solutions, such as quote-to-cash, accounts payable and accounts receivable" that are both "easy-to-use and cost-effective." PSIGEN also says it has solutions for healthcare, human resources, legal, service bureaus, BPO, and SharePoint.

From what we gather, PSIGEN does not sell tailored versions of PSIcapture and PSIsafe that are fully customized for these vertical markets. Rather, PSIGEN promotes its solutions as having sufficient flexibility for these environments because of various connectors *("migrations")* in PSIcapture and because of certain programming interfaces for PSIsafe.

Meanwhile, Kofax already offers customized and/or customizable solutions for some of the same vertical markets, especially accounts payable and accounts receivable, as well as loan and claims processing. And to the extent PSIGEN tailors its solutions for specific verticals, its business in any one of those markets is very small in terms of absolute revenue, especially for a half-billion dollar company like Kofax.

More Customers; More Partners. Lastly, Kofax is correct in that PSIGEN's customers and channel partners will become Kofax customers and channel partners. That is true with any acquisition. The issue is what future revenue

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PSIsafe

If there were such great synergy for Kofax to enter the ECM market, the logical and readily available solution would be for Thoma Bravo to orchestrate a combination of Kofax and its big ECM portfolio company, Hyland. In reality, however, the exact opposite has happened. When Thoma Bravo acquired Lexmark's Enterprise Software unit from Ninestar in 2017, it separated the Kofax and Readsoft capture pieces to recreate what is today Kofax, and it put Perceptive and other ECM-related bits into an ever-larger Hyland.

Kofax: Acquires PSIGEN

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these customers and channel partners will produce.

On the surface, it seems that PSIGEN's 800 resellers could provide Kofax with a tremendous channel sales boost. But that number has always sounded extremely high. We have to wonder if it reflects all channel partners who have ever purchased software from PSIGEN. Consider the fact that a much larger Kofax has about the same number of channel partners *(i.e., 850)*, plus a large direct sales capability. If PSIGEN indeed doubles the number of Kofax's channel partners, it is likely that a lot of culling will be in order.

Most likely, Kofax will want to focus on relatively small subsets of PSIGEN's resellers and customers who will be interested in selling or buying other Kofax solutions. However, PSIGEN's customers are unlikely to want to switch over to Kofax software for document capture. And PSIGEN's mid-market focus may not bode well for up-selling Kofax's much higher-end TotalAgility and RPA applications.

How Will This Affect the MFP Industry?

The simple answer to this question is that Kofax acquiring PSIGEN will have very little impact on those who make, sell or use MFPs in the short to medium term. Likewise, there will be little impact on the "Capture & Print" or "Desktop Productivity" applications Kofax acquired from Nuance.

As best as we can tell, the only presence PSIGEN has in the MFP industry is that a modest number of dealers resell PSIcapture and perhaps PSIsafe. Most dealers who resell PSIGEN software do it as part of a document capture or ECM practice, rather than as an integral part of their MFP sales.

In no small part, this is because PSIGEN has no embedded MFP software clients for PSIcapture or PSIsafe so they can be accessed directly from the control panel of an MFP. At best, PSIcapture can import scanned files from a network folder.

It does appear that PSIGEN made some effort to penetrate the MFP market a few years ago. Back in 2014, it developed basic embedded PSIcapture support for Toshiba MFPs. PSIGEN and Toshiba America Business Solutions *(TABS)* even announced some form of partnership, but it is not clear that TABS ever resold PSIcapture. And since then, PSIGEN has dropped its Toshiba embedded MFP client, and TABS no longer mentions PSIGEN on its web site.

Similarly, PSIGEN in 2018 announced it had signed up ACDI to be its preferred distributor for the office equipment dealer channel, but that relationship has also ended.

So without a change in direction at Kofax to develop embedded MFP software clients for PSIcapture and/or PSIsafe — and provide meaningful differentiation between PSIcapture and AutoStore — the MFP industry is likely to remain an uninteresting part of the acquired PSIGEN business.

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Kofax acquiring PSIGEN will have very little impact on those who make, sell or use MFPs in the short to medium term. Likewise, there will be little impact on either the "Capture & Print" or "Desktop Productivity" applications that Kofax acquired from Nuance.

Ricoh Creates Digital Services Center to Accelerate US Transformation

On June 25, Ricoh USA announced it had launched a Digital Services Center, which the company positioned as "a major step in its digital transformation journey."

The Digital Services Center is part of a push by Ricoh USA to rebrand itself and ... to avoid using the word "print" as much as possible. For example, Ricoh USA now says it is "an information management and digital services company." Ricoh also says it "brings people, processes and technology together to solve problems for companies large and small." And the company says it "uses a wide range of systems, platforms, and image technology to make data accessible to people faster and with more insight than ever before."

As for the new Digital Services Center, Ricoh said it "will transform Ricoh's obsession with customer success into an incubation hub that aligns resources and prioritizes new solution development based on customer need." It will do this by providing "a centralized structure for the incubation, management, development and operationaliztion of Ricoh's Digital Services strategy, portfolio and roadmap." The Center will be in the business of building "services that add to the print experience and continue to leverage the company's 80+ years of innovation to help organizations simplify complexities, overcome obstacles and uncover hidden opportunities."

In terms of the nuts-and-bolts of what the Digital Service Center will do and how it will operate, Ricoh said surprisingly little. However, it did state the Center will have "dedicated resources who stay apprised of customer needs and market trends to influence Ricoh's development process."

Ricoh subsequently shared a little more information about the Digital Services Center. Ricoh positions the role of the Digital Services Center as centralizing existing and new innovation efforts that take the company further beyond its core/historic printing business in the US market.

The Digital Services Center is an organization, rather than a physical place or location. Ricoh said the Center employs "hundreds of team members." And ongoing, Ricoh will leverage existing employees and new hires who have "expertise in the services our customers expect from Ricoh."

The Center is "aligned into four strategic areas" that Ricoh refers to as Portfolio Strategy and Incubation; Portfolio Management and Governance; Portfolio Solution Development; and Portfolio Solution Management and Service Transition.

Ricoh said the Center is developing new software from scratch, with an emphasis on "agile platform-oriented solutions to address customers' digital services objectives." In some cases, these solutions will leverage emerging software technologies, including low code/no code, serverless computing, AI and data analytics. Additionally, Ricoh will co-develop solutions with customers and technology partners.

Out biggest concern with all of this is that there seem to be no bounds regarding the range of solutions, software and/or services the Digital Services Center will develop. For all the talk about a portfolio, Ricoh says nothing about what the Center will — or will not — create and for whom.

The biggest concern with what Ricoh say it's doing is that there seems to be no limits to the kinds of solutions, software and/or services the Digital Services Center might develop. For all the talk about its "portfolio," Ricoh says nothing about what the Center will — or will not — create and for whom.

COVID: Printer Company Share Prices Have Recovered

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inkling of a global plague; (2) at the end of 2019, just as the first COVID cases were emerging in China but before there was much worldwide impact; (3) at the end of June 2020, which coincided with the first full quarter during which COVID-19 caused widespread havoc in the global economy; and (4) at the end of 2020, when there were mixed signals that the worst of the pandemic might be over, but there were still grave concerns that another wave was in the offing.

If one looks at the average share price for the world's fifteen publicly traded hardcopy vendors as a group, there is good news across all four of these time periods. That is to say, the average share price for these printer companies rose during each of these four periods. Specifically, the average share price at the end of June 2021 was up 23.4% from the end of 2018 *(i.e., 30 months ago)*; it was up 0.7% from the end of 2019 *(i.e., 18 months ago)*; it was up 39.4% from the end of June 2020 *(i.e., 12 months ago)*; and it was up 27.5% from the end of 2020 *(i.e., 6 months ago)*.

By the way, when we speak of an "average share price" for these companies, it is a simple arithmetic mean. There is no weighting based on share price, revenue, or market cap. In addition, it is possible that some of the improvements in share prices for particular printer vendors *(e.g., Canon, HP, Ricoh, Xerox)* could be due to repurchasing of shares.

One way to assess the performance of these fifteen printer stocks in these four specific periods is to compare the average share price to broad-based stock indexes in the countries where the companies are headquartered. We chose the TOPIX Index in Japan, the S&P 500 Index in the US, the SZSE Index in China, and the KOSPI Index in South Korea.

The results of these comparisons are mixed *(see table below)*. Printer company stocks outperformed an average of these four national market indexes in two periods *(i.e., from December 2018 to June 2021, and from June 2020 to June 2021)*. And printer company stocks lagged an average of those same indexes in two other periods *(i.e., December 2019 to June 2021, and December 2020 to June 2021)*.

	End of Dec '18 to End of Jun '21	End of Dec '19 to End of June '21	End of Jun '20 to End of Jun '21	End of Dec '20 to End of Jun '21
Printer Average	**+23.4%**	**+0.7%**	**+39.4%**	**+27.5%**
TOPIX Index	+30%	+13%	+25%	+8%
S&P 500 Index	+71%	+33%	+39%	+14%
SZSE Index	+109%	+45%	+26%	+5%
KOSPI Index	+62%	+50%	+57%	+15%
Index Average	**+10.4%**	**+36.6%**	**+35.3%**	**+68.1%**

Anyway, despite the positive *average* share performance of publicly-traded hardcopy vendors at the end of June 2021 when compared to each of the four periods we looked at, there were very significant differences across *individual* printer companies in each of these same time periods. We have chosen to focus on two specific periods to dive deeper into the stock market performance of individual vendors.

For each of these two periods, we have provided a table that presents the changes in individual and average printer company share prices, along with the corresponding changes in the same four national stock market indexes.

From Disaster to Recovery. First, we have compared stock prices for fifteen publicly-traded hardcopy vendors at the end of June 2020 and the end of June 2021. This period approximates that core twelve months during which the global economy and the hardcopy industry were most affected by the COVID-19 pandemic and its impact.

One-Year View Stock or Index	End of June 2020	End of June 2021	One-Year Change
TOPIX Index	1,558.77	1,943.57	**+24.7%**
S&P 500 Index	3,100.29	4,297.50	**+38.6%**
SZSE Index	11,992.35	15,161.70	**+26.4%**
KOSPI Index	2,106.70	3,296.68	**+56.5%**
OKI	¥1,028	¥1,018	**-1.0%**
Ninestar	¥32.15	¥32.20	**+0.2%**
Toshiba TEC	¥4,145	¥4,570	**+10.3%**
Brother	¥1,887	¥2,217	**+17.5%**
Kyocera	¥5,780	¥6,866	**+18.8%**
Canon	¥2,087	¥2,513	**+20.4%**
RISO	¥1,446	¥1,776	**+22.8%**
AVERAGE			**+39.4%**
Sindoh	₩24,400	₩34,500	**+40.8%**
Xerox	$15.29	$23.49	**+53.6%**
Epson	¥1,209	¥1,954	**+61.6%**
Sharp	¥1,123	¥1,833	**+63.2%**
Ricoh	¥760	¥1,247	**+64.1%**
Konica Minolta	¥367	¥614	**+67.3%**
HP	$17.43	$30.19	**+73.2%**
Fujifilm	¥4,621	¥8,239	**+78.3%**

Interestingly, hardcopy stocks performed very well during this period, with an average increase of almost 40% across the stocks of all fifteen vendors. That is a massive increase from the end of Q2 last year to the end of Q2 this year. In fact, the increase was better than the performance of the stock market over the same period as measured by the S&P 500, TOPIX and SZSE indexes in the US, Japan and China. Only the KOSPI Index in Korea grew faster than the printer vendor average

The results were somewhat different at the individual company level. Eight printer vendors had share prices that grew faster than the stock market index in their home country. Seven printer vendors had share prices that trailed their national stock market index.

However, only one printer vendor *(i.e., OKI)* saw its stock drop from June 2020 to June 2021, and the decline was a very modest 1%. Moreover, printers over the previous twelve months probably generated just 15-20% of OKI's sales.

Among the fourteen hardcopy vendors whose share prices rose during the twelve months prior to the end of

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Over the past twelve months – from the end of June 2020 to the end of June 2021 – printer vendor stocks did very well, with an average increase of almost 40% across the shares of these fifteen companies. That is a massive increase. In fact, it was better than the performance of the larger stock market over the same period as measured by the S&P 500, TOPIX and SZSE indexes in the US, Japan and China respectively. Only the KOSPI Index in Korea grew faster than the printer vendor average in this time period.

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June 2021, eight companies grew faster than the group average, and six companies grew slower than the average.

However, the magnitude of the share prices gains for the fourteen printer vendors whose stocks rose from late June 2020 to late June 2021 varied a lot. The range was from less than 1% *(i.e., Ninestar)*, to more than 70% *(i.e., Fujifilm and HP)*. In between these two extremes, five companies had share gains between 10% and 30% *(i.e., Toshiba TEC, Brother, Kyocera, Canon and RISO)*; one company had a share gain between 30% and 50% *(i.e., Sindoh)*; and five companies had share gains between 50% and 70% *(i.e., Xerox, Epson, Sharp, Ricoh and Konica Minolta)*.

From this perspective, it looks like printer vendor stocks as a group — and for nearly every company individually — had recovered quite well from the pandemic by late June.

Before and After. To provide a somewhat longer-term perspective, we also compared the share price for each hardcopy vendor over the past 18 months, i.e., from the end of June 2019, to the end of June 2021 *(see adjacent table)*. The idea was that looking at printer vendors' stock prices over this longer time frame would shed light on just how strong the recovery from the COVID-19 pandemic has been.

18-Month View Stock or Index	End of Dec 2019	End of June 2021	18-Month Change
TOPIX Index	1,721.36	1,943.57	+12.9%
S&P 500 Index	3,230.78	4,297.50	+33.0%
SZSE Index	10,430.77	15,161.70	+45.4%
KOSPI Index	2,197.67	3,296.68	+50.0%
Xerox	$36.87	$23.49	-36.3%
OKI	¥1,519	¥1,018	-33.0%
Canon	¥2,987	¥2,513	-15.9%
Konica Minolta	¥713	¥614	-13.9%
Kyocera	¥7,480	¥6,866	-8.2%
RISO	¥1,931	¥1,776	-8.0%
Sindoh	₩36,900	₩34,500	-6.9%
Brother	¥2,271	¥2,217	-2.4%
Ninestar	¥32.92	¥32.20	-2.2%
AVERAGE			+0.7%
Toshiba TEC	¥4,520	¥4,570	+1.1%
Ricoh	¥1,192	¥1,247	+4.6%
Sharp	¥1,685	¥1,833	+8.8%
Epson	¥1,655	¥1,954	+18.1%
HP	$20.55	$30.19	+46.9%
Fujifilm	¥5,230	¥8,239	+57.5%

That is to say, looking at this 18-month period is intended to compare where hardcopy vendor stocks are today, versus right before the pandemic emerged. It is sort of a "before and after" view of the pandemic's impact. Keep in mind, however, that the hardcopy industry and many hardcopy vendors were not performing all that well in 2019.

It turns out the results for hardcopy company share prices were very different for the trailing 18-month window, versus the trailing 12-month window. Across these fifteen hardcopy companies, the average share price was basically flat *(i.e., up a slight 0.7%)* from the end of December 2019 to the end of June 2020. That is certainly not great performance. By comparison, the four major national stock market indexes we looked at in Japan, the US, China and South Korea were up anywhere from 13% to 50% during the same 18-month period. Nonetheless, these results do speak to the resilience of the hardcopy industry in that the average share price for these companies in a declining market that was buffeted by the pandemic did not decline over the past 18 months.

We also found that the divergence in share prices across hardcopy vendors was much greater in the past 18 months than it was in the past 12 months. As noted, the average for the entire group of vendors was basically flat *(i.e., 0.7% growth)*. But the range of results across companies varied tremendously, from a 36% decline for Xerox shares, to a 58% gain for Fujifilm shares. That is a huge spread.

Overall, nine hardcopy vendors saw their respective share prices fall from the end of December 2019 to the end of June 2021. And only six printer companies experienced gains in their stock prices during the same period. Some of this reflected more extreme performance at both ends of the spectrum.

At the lower end of the scale, Xerox and OKI saw their respective share prices fall 36% and 33% during this 18-month period. And at the upper end of the scale, HP and Fujifilm experienced respective share price gains of 47% and 58% during the same 18-month period.

Conversely, eight printer vendors saw their stock prices swing less than 10% either way from the end of December 2019, to the end of June 2021. Specifically, Kyocera, RISO, Sindoh, Brother and Ninestar saw their respective share prices fall less than 10%. And Toshiba TEC, Ricoh and Sharp experienced respective share price increase less than 10%. That left Canon and Konica Minolta with share prices that fell between 10% and 20%, and Epson had a stock price that increased between 10% and 20%.

So the overall lesson here is that, despite the horrific and disruptive impact of the COVID-19 pandemic over the past year and a half, the *average* stock price for all hardcopy vendors is now essentially flat. Having said, there are still winners and losers when it comes to the *relative* stock price performance among printer vendors. It is also worth remembering that the stock price performance for some diversified printer companies may very well be due only partly to what happened in their particular hardcopy businesses.

Nonetheless, when it comes to stock price performance at an overall corporate level from before the pandemic in late 2019, to after the pandemic had significantly subsided at the end of June 2021, there are winners and losers.

Measured purely in terms of stock price performance, the poorest performing companies were Xerox and OKI, followed by Canon and Konica Minolta. And the best performing hardcopy vendors were Fujifilm and HP, followed by Epson. Stockholders in the other eight printer companies have fared somewhere in between.

Measured purely in terms of stock price performance over the past eighteen months (the end of December 2019 to the end of June 2021), the poorest performing hardcopy companies were Xerox and OKI, followed by Canon and Konica Minolta. And the best performing printer vendors were Fujifilm and HP, followed by Epson. Stockholders in all of the other eight printer companies fared somewhere in between.

Epson Launches Its Latest EcoTank Model for Resellers and Dealers

PRODUCTS

On June 16, Epson America launched the WorkForce ST-C8090, an A3-size desktop AIO with refillable ink tanks and a suggested price of $1,499. Epson is specifically targeting the new MFP at customers in the hospitality, architecture and finance industries. And in announcing the new product, Epson America also provided a much-needed overview of its growing lineup of so-called Supertank models that are available through its BusinessFirst channel partners.

The WorkForce ST-C8090 is an addition to Epson's growing line of "Business Inkjet Supertank" products. In fact, it is at the top end of Epson's WorkForce series of ink tank products. All models added to this series since the start of 2019 have an "ST" prefix. That is presumably to differentiate them from Epson's cartridge-based "WF" series models and its consumer/SOHO "ET" series EcoTank ink tank AIOs.

The ST-C8090 and all other ST-series models are available from Epson's BusinessFirst resellers. This includes its Platinum office equipment dealers, who have exclusive rights to Epson's WorkForce Enterprise MFPs. But distribution is not limited to just those dealers. Silver and Gold partners include a broad range of IT resellers, ranging from local VARs, to giant online IT business resellers. However, Epson emphasizes that only authorized BusinessFirst dealers are allowed to buy these models from big online sellers like CDW.

However, it is worth pointing out that the existing WorkForce ST-C8000 in this series can easily be purchased online by end users from Staples and other sellers *(e.g., Adorama)*.

Epson's Open Platform Partners

For unknown reasons, Epson has never said much about its Epson Open Platform (EOP) for embedded MFP solutions. It is impossible to find a list of EOP-compatible devices or EOP solutions on Epson's US web site. Searching for "EOP" or "Epson Open Platform" provides no relevant hits. So one has to wonder why Epson bothers with EOP, if indeed it does.

The list of compatible devices is comprised of two product groups: WorkForce Enterprise MFPs sold only by BusinessFirst Platinum partners (i.e., dealers); and WorkForce Pro MFPs that can be sold by any Epson BusinessFirst partner. As for the EOP solutions that work with these devices, we went round and round with Epson to obtain a definitive answer.

The only EOP solutions in the US are Epson Print Admin; Epson Print Admin Serverless; PaperCut MF; Sepialine Argos; Kofax Equitrac; MyQ; YSoft SafeQ; and NDD Print. All of these are overwhelmingly focused on printing, while Epson's office MFP competitors also offer homegrown and/or third-party embedded solution(s) for document capture and workflow. Epson's response is that its partner EOP print solutions have built-in "native scan workflow." But none of them enables very sophisticated scanning. Ironically, there are no EOP-compatible capture or ECM solutions from any of the ISVs Epson works with to sell its scanners. That list includes Ephesoft, Laserfiche, PSIGEN, Square 9 and Upland.

Epson promotes its ST series products as a direct alternative to mostly lower-end laser MFPs and printers. Epson highlights to channel partners the relatively high hardware prices and low page costs for the ST series. And because these products ship with a whole lot of ink in the box, they provide a way for dealers to capture page revenue up front, instead of periodically selling cartridges to their customers.

The $1,499 WorkForce ST-C8090 is an addition to Epson's growing lineup of "Business Inkjet Supertank" products. In fact, it is at the top end of Epson's WorkForce series of MFPs with refillable ink tanks.

The new $1,499 WorkForce ST-C8090 is an enhanced version of the $1,299 WorkForce ST-C8000 that Epson America launched a year ago *(The MFP Report, May 20)*. The two main things that differentiate the new model are the addition of PCL and PostScript emulations for printing, and support the Epson Open Platform *(EOP)* solutions platform *(see sidebar)*. To support both of these additions, the ST-C8090 also has 1 GB of memory.

The WorkForce ST-C8090 and ST-C8000 are both sold by resellers, and they share the same underlying platform as the EcoTank Pro ET-16600 and ET-16650 that Epson sells broadly in retail channels for $999 and $1,129, respectively *(The MFP Report, Mar 20)*. In fact, the ST-C8000 is functionally and operationally identical to the ET-16650, while the ET-16600 is a somewhat lower-end model.

All of these WorkForce and EcoTank Pro MFPs use the same 542-series DURABrite pigment ink bottles. The 127 ml black ink is $29.99 and prints 7,500 pages, and each 70 ml color ink bottle is $22.99 and prints 6,000 pages.

Epson includes three sets of ink bottles. After allowing for some initial ink to prime the printheads, Epson says the bundled ink is enough to print 19,500 black pages and 14,500 color pages. Epson also perpetually runs a 100% mail-in rebate for up to two more sets of ink bottles purchased in the first two years, so customers probably will not spend any more on ink for two years. After that, the page costs are very low at 0.40¢ for black and 1.55¢ for color.

Like all of Epson's related models, the ST-C8090 has a two-year limited warranty. And Epson quotes the same 66,000-page monthly duty cycle for the ST-C8090, although the recommended monthly usage is 3,300 pages.

The lack of protected supplies, the ink rebate, and the two-year warranty mean the ST-C8090 will garner little interest from Epson's Platinum office equipment dealers. So Epson will have to rely exclusively on the IT sales channel.

The ST-C8090 weighs 46 pounds, and it is 20.3" wide, 19.7" deep and 13.8" high. The exterior is light grey. The AIO has a front-facing C-shaped paper path, and the four

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The ST-C8090 is available from Epson's BusinessFirst resellers. This includes Platinum office equipment dealers, along with Silver and Gold partners. Those are primarily IT resellers, ranging from local VARs, to online IT business resellers.

PRODUCTS

Brother Rolls Out Trio of INKvestment AIOs Based on New Platform

Brother in June expanded its US INKvestment product line with the addition of three AIOs based on what appears to be a cleansheet platform. The only one of the new models that Brother formally announced — with a press release on June 17 — was the $99 MFC-J1205W. Conversely, the $149 MFC-J4335DW and $199 MFC-J4535DW simply popped up on Brother's US web site, just like the $89 MFC-J1215W did a few weeks earlier *(The MFP Report, May 21)*.

Brother is the only inkjet vendor that does not sell in the US any of its AIOs that have refillable ink tanks. Instead, the INKvestment models have a reasonable up-front purchase price, and they include high-capacity ink cartridges that deliver lower page costs than typical ink cartridges. However, the page costs are higher than for the bottles of ink Epson, Canon and HP sell for their AIOs with refillable ink tanks.

MFC-J1205W. The $99 MFC-J1205W is identical to the month-old $89 MFC-J1215W, except for the higher price and the fact that it is sold more widely. The MFC-J1215W is Brother's least expensive INKvestment model. However, there is still no sign of a related model called the MFC-J1205W XL, which likely includes even more ink.

Adding to the confusion over these entry-level INKvestment models is that Brother on its web site had originally indicated the MFC-J1215W was available exclusively from Walmart. However, at the end of June, the MFC-J1215W no longer appeared on the Walmart web site. Nor was it anywhere else to be found. Brother subsequently explained that the MFC-J1215W was temporarily sold out at Walmart. Meanwhile, the new MFC-J1205W is available from a broader range of online sellers *(e.g., Amazon, Quill)* and big retail chains *(e.g., Office Depot, Staples, Best Buy)*.

The main thing Brother emphasizes about the MFC-J1205W and MFC-J1215W are the "re-engineered high-capacity ink cartridges." Brother includes starter cartridges that provide for one year of printing, which Brother defines as printing 80 pages per month *(60% black and 40% color)*. Thereafter, Brother sells four new LC404 series ink cartridges that each print 750 pages. The black cartridge is $24.99, and the color cartridges are $14.99 apiece. These result in ongoing page costs of 3.3¢ for black and 6.0¢ for color.

Brother quotes a 2,500-page monthly duty cycle and recommends a monthly print volume of 50 to 1,000 pages. The new AIOs also come with a two-year limited warranty.

The MFC-J1205W and MFC-J1215W weigh 14.3 pounds, and they are 14.1" wide, 17.1" deep and 6.3" high. They have a C-shaped paper path that connects the front-facing 150-sheet paper cassette in the base to the 50-sheet exit tray above it. There is no document feeder or duplex output, and the small control panel on the top left corner has no LCD.

The $199 MFC-J4535DW is the flagship model among four new INKvestment AIOs that are based on Brother's first cleansheet inkjet platform in several years.

Although Brother for 25 years has used the "MFC" prefix to designate its fax-equipped AIOs and MFPs, the MFC-J1205W and the MFC-J1215W are print/scan/copy devices.

Both AIOs have ISO print speeds of 16 ppm for black and 9 ppm for color, and ISO copy speeds of 6 ppm for B&W and 3 ppm for color. The controller has 128 MB of memory, a USB device port, and WiFi Direct connectivity. The print, scan and copy features are the same as on other current Brother inkjet AIOs. However, these are the first models to use the new Brother Mobile Connect app, as well as the long-standing Brother iPrint&Scan mobile device app.

The Brother Mobile Connect app enables mobile printing, scanning, copying and device management, but it does not have the cloud connectivity of Brother's iPrint&Scan app. However, the Brother Mobile Connect app does have a Page Gauge that reports how much ink has been used and is left in the AIO. Frankly, it would have been better if Brother had added these new features to its existing mobile device app

MFC-J4335DW and MFC-J4535DW. These two AIOs share the same industrial design as the MFC-J1215W and MFC-J1215W, but they are enhanced in multiple ways — including a new set of LC406 ink cartridges — to satisfy more demanding users. So far, there is no sign of the related MFC-J4335DW XL or MFC-J4535DW XL AIOs.

The MFC-J4335DW and MFC-J4535DW ship with four starter cartridges. Brother says these are sufficient for a year's

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HP Experiments with Its Tango

HP's three-year old, mobile-oriented Tango inkjet printer continues to be one its more innovative and unusual inkjet devices from a technical and marketing perspective (The MFP Report, Sep 18). Now HP is experimenting with how it prices and sells the Tango printer. From the start, the Tango printer was priced at $149. And the Tango X version – which includes a rigid wraparound textured cloth cover – was priced at $199. Both Tango printer models have always been eligible for HP's Instant Ink subscription plans.

We noticed in June that the Tango is available now only with a "free" 4-month Instant Ink subscription. And the prices are now $159 for the basic Tango and $219 for the Tango X version with the cover. That is a $10 premium for the basic Tango and a $20 premium for the Tango X. This appears to be the first time HP has opted to sell one of its inkjet devices exclusively with an Instant Ink subscription. HP says this "offer" runs through September 30, and it is available only in the US. Unfortunately, HP does not indicate what level of Instant Ink subscription is included with the Tango devices. HP's Instant Ink inkjet subscriptions – as opposed to its Instant Ink toner subscriptions – range from 99¢ per month for 15 pages, to $24.99 per month for 700 pages.

Brother: Thee New AIOs ➲ ... from p. 14

worth of printing, which it defines on these products as 150 pages per month *(60% black and 40% color)*.

Thereafter, Brother sells two new sets of ink cartridges, which are different from those for the new low-end INKvestment AIOs. The standard cartridges consist of a $32.99 black ink that prints 3,000 pages, and $23.49 color inks that print 1,500 pages. These cartridges result in pages costs of 1.1¢ for black and 5.8¢ for color. There are also high-capacity ink cartridges. The $55.99 black ink prints 6,000 pages, and the $62.49 color inks print 5,000 pages. These cartridges result in pages costs of 0.9¢ for black and 4.7¢ for color.

However, it is worth noting that the four high-capacity ink cartridges cost $243, which is more than the price of either the MFC-J4335DW or the MFC-J4535DW. Brother quotes a 30,000-page monthly duty cycle, which is a dozen times higher than for the new low-end models. However, the recommended monthly print volume is between 250 and 2,000 pages. And like the new low-end INKvestment AIOs, these models also come with a two-year limited warranty.

The MFC-J4335DW and MFC-J4535DW are significantly faster than the new low-end INKvestment AIOs. The ISO print speeds are 20 ppm for black and 19 ppm for color, and the ISO copy speeds are 13 ppm for B&W and 10.5 ppm for color. Brother still does not quote any scan speeds, despite including a 20-sheet simplex document feeder, and the platen is still letter-size. However, these AIOs are rare in that they can skip blank pages and deskew pages when scanning via the feeder. They also have a continuous scan feature that lets the user refill the document feeder, and use both the feeder and the platen to create a single scanned document.

Epson: A3 Supertank ➲ ... from p. 13

refillable ink tanks are located to left of the paper path.

The ST-C8090 has dual 250-sheet paper cassettes in front that handle 11" x 17" paper, a 50-sheet rear tray that handles up to 13" x 19" specialty paper, duplex output, and an exit tray that extends below the control panel, which has a 4.3" color touchscreen. The scanner is paired with a 50-sheet single-pass duplex document feeder, and both the platen and the feeder handle up to 11" x 17" paper.

The WorkForce ST-C8090 has USB device and host ports, wired Ethernet, WiFi Direct, and Bluetooth LE for WiFi setup. Epson also highlights WPA2 protection to provided added security for wired and wireless networking.

The new MFP has a 25 ppm letter-size ISO print speed for both color and monochrome output, with a first-print time of 5.5 seconds. Mobile printing is enabled via AirPrint, Mopria, and the Epson Solutions Suite. The ST-C8090 has an ISO copy speed of 23 ppm for color and B&W, but Epson does not quote any speeds for scanning. However, the ST-C8000 does have a scan-to-cloud capability, and it also includes various Epson scan utilities. Lastly, the fax function has a 33.6 Kbps modem and 550 pages of memory.

In addition to the document feeder, the new AIOs have a single-sheet bypass tray, duplex output, and a 100-sheet exit tray. The MFC-J4335DW has a single 150-sheet paper cassette, while the MFC-J4535DW adds a second 250-sheet cassette, for a 400-sheet input capacity. In addition, the MFC-J4335DW and MFC-J4535DW have a tilting control panel on the front of the device. The control panel on the MFC-J4335DW features a 1.8" color LCD, while the control panel on the MFC-J4535DW has a 2.7" color touchscreen.

All of this makes the new AIOs larger than the new low-end models. The MFC-J4335DW weighs 17.6 pounds, and it is 17.1" wide, 14.2" deep and 7.1" high. The MFC-J4535DW is 3.5 pounds heavier and about 3" taller.

The controller still has 128 MB of memory, and the MFC-J4335DW has the same connectivity as the low-end models. However, the MFC-J4535DW also includes wired Ethernet, NFC, support for one-push WiFi protected setup, and a USB device interface. In addition, both of these higher-end INKvestment AIOs work with various Brother cloud apps to provide integration with OCR, e-mail, and Microsoft Office. They also have direct print and scan connectivity for popular cloud solutions from Goggle, Microsoft, OneDrive, Dropbox and Evernote. And of course, they support AirPrint and Mopria, as well as Brother's existing iPrint&Scan app and the new Brother Mobile Connect mobile device app.

Lastly, both of these new higher-end AIOs include 70 sheets of fax memory and a sort of outdated 14.4 Kbps fax, although it probably does not matter given the sparse use of fax in homes and most small businesses.

Aurora Launches Low-Priced A4 Mono Pantum Models in China

Taiwan-owned Aurora on June 17 announced a new pair of rebadged A4 monochrome devices for sale in China. The 22 ppm A4 *(23 ppm letter)* devices are the AD228PW printer and the AD228MWC 3-in-1 device. Most of Aurora's A3 MFPs are OEM'd from Konica Minolta, but all of its A4 models come from Pantum. And while Konica Minolta China also OEM's several A4 monochrome Pantum devices, these latest Aurora products are not from that group.

Aurora has been OEM'ing Pantum printers and MFPs for several years, and it already had over a dozen such models in its product line in China before this announcement. However, these new models are the lowest-priced Pantum-made products by far that Aurora is now selling in China. The official prices for the new products are ¥799 *($123)* for the AD228PW printer and ¥1,099 *($170)* for the multifunctional AD228MWC. These prices are 27% lower and 50% lower, respectively, than any of Aurora's current models.

Aurora's new AD228MWC and AD228PW appear to be equivalent to the M6509W and P2509W that Pantum shipped in 2019. Pantum does not sell either of those specific models in the US, but they are virtually identical to several earlier M6500 series MFPs and P2500 series printers that Pantum first shipped back in 2015.

PRODUCTS

hmmm...

A set of four high-capacity ink cartridges for the MFC-J4535DW costs $243, which is more than the $199 purchase price for the device. Brother also quotes a 30,000-page monthly duty cycle, which is a dozen times higher than for its new low-end AIOs that share basically the same engine.

AURORA

Aurora has been OEM'ing Pantum printers and MFPs for several years, but these new models are the lowest-priced Pantum products by far that Aurora has ever sold in the Chinese market.

PRODUCTS

Toshiba TEC Announces e-Bridge Next Update for Current e-Studio Line

On June 25, Toshiba TEC in Japan announced feature enhancements for its e-Bridge Next MFP controller platform that will be available as a free firmware update to customers who are using the company's current generation e-Studio MFPs and have a service contract in place. This marks the first time Toshiba TEC has been able to add significant new features to existing MFPs in the field in this manner.

The e-Bridge Next update was supposed to be available immediately in Japan on June 25, although it was not clear at the end of June if that had happened. Meanwhile, Toshiba TEC in Japan says availability elsewhere will vary by region, with Toshiba America Business Solutions expected to make the firmware available in the US in August.

The only other vendors that have taken a similar approach to adding features to existing office MFPs are Canon and Ricoh. Other vendors only incorporate new controller and firmware capabilities when launching updated devices.

Toshiba TEC first introduced e-Bridge Next as a significant update to its MFP controller and firmware back in 2016 in a new series of A3 color and monochrome e-Studio MFPs. Toshiba TEC updated the e-Bridge Next platform when it launched a refreshed e-Studio product line in the fall of 2018.

The current generation of e-Studio MFPs that have the latest e-Bridge Next architecture that can be updated to utilize the new controller firmware and features are primarily A3 models. These include the 20 to 75 ppm color e-Studio MFPs and the 20 to 85 ppm monochrome e-Studio MFPs that Toshiba launched in 2018 *(The MFP Report, Sep and Dec 18)*. Also included are the 35 and 42 ppm A4 color e-Studio MFPs that Toshiba shipped in 2020 *(The MFP Report, Aug 20)*.

Conversely, the new e-Bridge Next update is not available for Toshiba's lower-end A4 monochrome MFPs; the A4 monochrome or color MFPs that Toshiba OEMs from Lexmark; or the 90-120 ppm A3 monochrome light production MFPs that Toshiba sources from Sharp.

Toshiba TEC highlighted four main areas of enhancement in its e-Bridge Next firmware update. However, Toshiba TEC has provided no details on these features beyond the cursory introduction it included in its press release.

First, there is new support for two important cloud-based printing architectures, namely, Microsoft Universal Print and native Google Chrome OS printing for Chromebooks.

Second, Toshiba TEC's new Cloud Managed Document Service enables e-Studio MFPs to directly communicate with cloud services. This includes a new e-Bridge Cloud Login feature that permits users to login from a PC or mobile device. This feature requires authentication the first time a user logs in to a cloud service, but it is automatic thereafter.

Third, Toshiba TEC has added a new Remote Assistant Menu to the e-Studio control panel. By simply clicking on the control panel icon, the user can get assistance from a call center. This feature also enables the call center to access the MFP transmission log, and it provides a remote control panel to help solve the user's problem or request.

And fourth, a new e-Bridge Remote Diagnostic Tool monitors and analyzes the e-Studio MFP in order to predict the type and timing of potential device malfunction or failure. This allows a service call to be scheduled so that MFP downtime is reduced or eliminated.

This is the first time that Toshiba TEC has been able to add significant new operating and connectivity features to its customers' existing e-Studio MFPs in this manner. The only other vendors that do this – and have been doing it for some time now – are Canon and Ricoh.

Toshiba Launches Trio of MFP Scan Apps in a Bundle for the US

On June 9, Toshiba America Business Solutions *(TABS)* announced its Workplace Productivity Bundle, which consists of three embedded apps for its current e-Bridge Next enabled e-Studio MFPs. TABS says the apps, which require no external server or hardware, "help customers digitize large volumes of paper documents, capture metadata, and deliver searchable files" when scanning on its MFPs. The Workplace Productivity Bundle is priced at $299 per MFP.

The three apps that comprise the Workplace Productivity Bundle are e-Bridge Plus for Barcode Scan, e-Bridge Plus for Zone OCR, and eConnect for StackSend.

The two e-Bridge Plus apps in the Workplace Productivity Bundle appear to have been developed by Toshiba TEC in Japan. They have been available separately in Europe for about a year. They join several other e-Bridge Plus embedded apps that have debuted since late 2018 for Toshiba's current generation MFPs that have the e-Bridge Next controller. These include e-Bridge Plus apps for ID Card, Green Information, USB Storage, WebDAV, Box, Dropbox, Exchange Online, Google Drive, OneDrive, and SharePoint Online. However, not all of these apps are available in every geography.

eConnect for StackSend is new embedded MFP app that appears to have been developed by TABS in the US. Although the name reminds one of the eConnect for TouchFree app TABS launched earlier this year, that app is for mobile devices. And as far back as 2015, TABS has used the eConnect name for its Metascan Enable kit, and for its embedded MFP applications connector for PaperCut and Perceptive.

The e-Bridge Plus for Barcode Scan app lets customers use barcoded cover/separator sheets when scanning batches of pages that include multiple documents. The app detects and reads the barcodes while scanning, splits the batches, and automatically stores the documents in the desired folder.

The e-Bridge Plus for Zone OCR app recognizes up to three text, numeric or barcode zones on each scanned page. But users first need to create preset templates by defining those OCR zones with a highlighter on a sample document. The data can then be used to sort the scanned images and to create file/folder names for the documents.

Lastly, the eConnect for StackSend app streamlines scan workflows by letting users automatically route scanned documents and data simultaneously to any combination of preconfigured folder destinations and e-mail addresses.

PRODUCTS

Avision Tries Free Toner to Unload Pandigital MFP & Printer in the US

Taiwan's Avision has struggled for almost two decades to expand its business beyond low-end and midrange document scanners to a variety of homegrown A4 and A3 monochrome MFPs and printers. But it has generally failed to sell a significant number of either branded or OEM'd versions of its print devices. Instead, Avision has had to settle for limited direct sales, mostly in parts of EMEA and in India; and a few small, low-profile OEM deals in China and Russia.

So it was interesting when we stumbled across a company called Pandigital that is selling a pair of low-end 32 ppm *(or 30 ppm for A4)* monochrome products that are clearly made by Avision. Pandigital is selling the products in the US from its own web site and through an online self-described "dealer" called Argecy. Moreover, both companies are promoting "free toner for life" for these Pandigital devices to any customer who simply registers the product. According to Pandigital, the company "decided to create good quality printers and simply baked in the cost of the toners."

There are only two products. The Pandigital L1 is a $199 printer, and the Pandigital M1 is a $249 MFP. They are rebadged versions of the AP30 printer and AM30A MFP that Avision quietly launched some time in 2018. But those models are virtually identical to the original series of AP300 printers and AM3000 MFPs that Avision previewed in mid-2015 and began trying to sell in late 2016. All of these products utilize the only A4 laser/LED engine Avision has developed.

The fact that these devices have emerged in the US under the Pandigital name is confusing and circuitous. A company by the name of Pandigital was founded in Dublin, California in 1998. It made digital photo frames for many years. Then around 2010, it expanded into making and/or selling a few tablets, e-readers, and low-end scanners. Those scanners were apparently OEM'd from Avision. However, Pandigital filed for bankruptcy in 2012, and the company liquidated all of its remaining inventory that same year. But some of those products still occasionally pop up for sale online.

Then in 2016, Avision acquired the rights to the Pandigital name in the US. And it appears Avision since then has continued to sell a few low-end sheetfed and wand-type scanners under the Pandigital name. It has also sold a Pandigital brand ZINK-based photo printer that does not share the same industrial design as the popular ZINK photo printers sold by HP, Canon and others. However, those Pandigital products do not appear on any Pandigital web site.

About a year ago, Avision began using the Pandigital name to bring its low-end B&W printers to the US. According to the Pandigital web site — which is just for these two printers — the company is located in Newark, California, near Silicon Valley. A note on the company's web site states rather emphatically, "We sell and support Pandigital laser printer only. We DO NOT support other Pandigital products."

As for Argecy, that company is located in Michigan. It has been selling "new, surplus and refurbished business printing equipment" since 1985. Argecy carries few print devices; it mostly sells supplies and accessories for printers from more than two dozen vendors, including esoteric or long-gone printer companies like Tally, IBM, Panasonic, Printronix, and Printek. Argecy is believed to have only a dozen or so employees and less than $2 million in annual sales.

When we called Argecy to ask about the Pandigital products, the sales rep said he could not recommend them because "they jam all the time." The rep had no interest in discussing the free toner offer. Instead, he planned to take the Pandigital products down from Argecy's web site. However, that sales rep was also under the false impression that the Pandigital MFP and printer were made by Pantum.

The 32 ppm monochrome Pandigital M1 printer/scanner/copier is the same as the AM30A that Avision shipped in 2018. With a $249 price and a promise of free toner for life, it is difficult to see how this MFP and the related $199 L1 printer will do anything for Avision, except to help it lose more money.

And then there is Avision. The company was founded in 1991 in Taiwan's famed Hsinchu Science and Industrial Park, and it became a public company traded on the Taiwan Stock Exchange in 1998. Throughout the 1990s, Avision rode the scanning boom as mostly an OEM supplier of workgroup and consumer scanners. The company's revenue peaked in 2000 at NTD9.4 billion. But in the two decades since, it's been mostly downhill. Avision's revenue in 2020 was NTD1.835 billion *($65.6 million)*. While that was up 12% from 2019, it was down 80% from 2000. Moreover, Avision has been losing money for most of the new millennium. The company in 2020 lost NTD413 million *($14.8 million)*, bringing its loss in just the past five years to NTD1.978 billion *($70.7 million)*.

Although Avision's stock has performed much better in 2021 than it did in the past five years, Avision's market cap on June 30 was only NTD2.088 billion *($74.6 million)*.

The Pandigital products look reasonable, but the specs are unremarkable. The printer weighs 19 pounds, and the MFP weighs 24 pounds. They each have a 300 MHz Qualcomm Quatro processor, 12 MB of memory, 16 MB of flash memory, USB device and host ports, wired Ethernet, and GDI printing. The also have a 150-sheet input tray, a 10-sheet manual feed, duplex output, and a 250-sheet exit tray.

In addition, the M1 MFP has a color CIS scanner, a 35-sheet simplex document feeder, and a 1.7" monochrome LCD. It provides basic scanning and copying, but fax is not supported. And the monthly duty cycle is rated at 15,000 pages.

The Avision-developed LED engine uses a separate drum unit and toner cartridge. The drum lasts for 12,000 pages, with a replacement priced at $60. The M1 and L1 devices come with a 5,000-page toner cartridge. As for the promise of free toner for life, we could never get through to Pandigital or get a call back when leaving a message. However, it is clear that with prices of $199 and $249, and a post-sale loss instead of a post-sale annuity, these hardcopy devices are not likely to help Avision find profitable growth.

PRODUCTS

Fujifilm Business Innovation's First New OEM Deal Is with NEC in Japan

Back in late 2019 and early 2020, Fujifilm emphasized how it would grow its OEM sales as a result of paying Xerox $2.3 billion in cash for its stakes in Fuji Xerox and Xerox International Partners. Fujifilm claimed it would generate ¥90 billion *($814 million)* more from OEM sales of devices and components in FY2025 than in FY2020. But in the Vision 2023 three-year plan it released in April, Fujifilm dropped that target and merely said it would "expand OEM supply."

Against that backdrop, the new Fujifilm Business Innovation that came into existence on April 1 chalked up its first new OEM'd devices on June 28, when NEC announced the 30 ppm A4 *(31 ppm letter)* Color MultiWriter 4C150 printer and 4F150 MFP. These products continue a long OEM supply relationship with NEC. Moreover, the products are sold only in Japan, where NEC is a very small, niche vendor.

The MultiWriter 4C150 and 4F150 are rebadged versions of the ApeosPrint C320dw and Apeos C320z that Fujifilm announced in Japan on April 1 *(The MFP Report, Apr 21)*. They were followed by other equivalent models, including the ApeosPrint C328dw and Apeos C328df in China, and the ApeosPrint C325dw and Apeos C325z in Australia.

These products use a cleansheet Fujifilm LED print engine that is about 40% smaller than the DocuPrint models they replace. And these devices also have the distinction of being the first in the industry in which the controller is powered by a new QBit Semiconductor QB63xx series system-on-a-chip *(SOC)* printer/MFP processor *(story on p. 25)*.

For NEC, the 30 ppm 4C150 printer replaces the 23 ppm 5800C and 28 ppm 5850C, and the 30 ppm 4F150 MFP replaces the 28 ppm 400F. The older MultiWriter models shipped almost five years ago *(The MFP Report, Oct 16)*. The two 28 ppm MultiWriter models were equivalent to the older DocuPrint CM310dw and CP310z that Fuji Xerox had also launched in October 2016. Xerox still OEMs those same products as the Phaser 6510 and WorkCentre 6515, which it launched in late 2016 *(The MFP Report, Nov 16)*.

The only difference between the new NEC models and the related Fujifilm products is that the latter have a dark grey accent color surrounding the exit tray, while the former are completely light grey in color. The 4C150 printer weighs 38 pounds, and it is 16.1" wide, 16.9" deep and 14.4" high. The 4F150 MFP weighs 7 pounds more, and it is 6" taller.

Both products have a C-shaped front-facing paper path, a 250-sheet input tray, a 50-sheet manual feed tray, duplex output, and a 150-sheet internal exit tray. And customers can also add a second 250-sheet paper tray.

The MFP model has an A4 color scanner and a 50-sheet single-pass duplex document feeder. The simplex scan speeds are 30 ipm for B&W and 15 ipm for color, and the duplex scan speeds are 45 ipm for B&W and 22 ipm for color. The control panel has a 2.3" color touchscreen, versus the two-line text LCD on the printer model.

The MultiWriter 4F150 color MFP – a rebadged version of the Apeos C320z that Fujifilm announced in Japan in April – is the latest in a long line of printers that NEC has OEM'd from Fuji Xerox/Fujifilm.

The controller in the 4C150 and 4F150 has a 667 MHz single-core QBit chip, 512 MB of memory, 1.8 GB of eMMC memory, Gigabit Ethernet, a USB device port, and WiFi. PCL emulation is provided, but there is no support for PostScript, and there is no mention of mobile print support. The MFP also has basic PC/network scanning and 33.6 Kbps fax.

Both MultiWriter models ship with a 50,000-page drum unit; starter toner cartridges that print 2,500 black pages and 1,500 color pages; and a 6,000-page toner collection bottle. Thereafter, there are two sets of EA-Eco toner cartridges. The standard cartridges prints 3,000 black pages and 2,000 color pages; the high-yield cartridges print 6,000 black pages and 4,000 color pages. The ongoing page costs for all of these consumables is equivalent to approximately 2.8¢ or 3.3¢ for B&W and 12.7¢ or 14.5¢ for color.

Fujifilm Business Innovation Previews First Revoria Monochrome MFPs

On June 22, Fujifilm Business Innovation continued its rollout of enhanced rebranded hardware. In this case, it previewed the Revoria Press E1 series of monochrome MFPs and printers, and the Revoria Press PC 1120 series of color digital presses. The new models will be available in Fujifilm's traditional territories between July and October, and the company said the products later on "will be released worldwide gradually ... to other countries and regions." Fujifilm explained that the Revoria name is an amalgamation of words referring to revolution, country or land, and rebirth or renewal.

The Revoria Press PC 1120 is an updated replacement for the 120 ppm Iridesse color production press that Fuji Xerox shipped in 2018 and which Xerox also launched that year. The Revoria Press E1 series consists of seven B&W models that replace the six B9100 series MFPs and printers that Fuji Xerox launched in late 2017 *(The MFP Report, Nov 17)*. However, Xerox did not ship its equivalent models until early last year *(The MFP Report, Feb 20)*. The Revoria E1100, E1110, E1125 and E1136 will be MFPs with speeds of 100, 110, 125 and 136 ppm; and the Revoria E1110P, E1125P and E1136P will be 110, 125 and 136 ppm printers.

Fujifilm has not posted prices or specs for the Revoria models or said how they differ from their predecessors.

Revoria™

The 136 ppm monochrome Revoria E1136 replaces the B9136 as the fastest MFP that Fujifilm offers.

Ricoh Completes Rollout of IM Series MFPs with A3 Mono Range

PRODUCTS

With little fanfare and no public announcement, Ricoh on June 9 rolled out a series of five A3 monochrome MFPs for the US market. The IM 2500, 3500, 4000, 5000 and 6000 have respective speeds of 25, 35, 40, 50 and 60 ppm. The new MFPs complete Ricoh's protracted transition from its previous MP-series models to the IM-series of so-called "intelligent" devices. The subdued arrival of these last IM models was in stark contrast to when Ricoh hosted a big New York press event two and a half years ago to debut its first A3 color IM products *(The MFP Report, Jan 19)*.

Since then, the rest of Ricoh's IM series of A3 and A4 color and monochrome MFPs have come out in dribs and drabs. Back at the start of 2019, Ricoh probably did not anticipate it would take thirty months to roll out the entire series. However, the pandemic and Ricoh's ongoing challenges no doubt explain the prolonged refresh cycle.

The IM 2500, 3500, 4000, 5000 and 6000 replace the same speed MP 2555, 3555, 4055, 5055 and 6055 that Ricoh launched in 2017 *(The MFP Report, Feb 17)*. Ricoh is not replacing the 30 ppm MP 3055 in the US, but a new IM 3000 is part of the lineup in Europe. And in Japan — where the new B&W products were subsequently announced on July 9 — there is no 30 ppm model in the old or new line.

Ricoh has retained the same list prices from the previous models, although it is not offering a configuration of the 25 and 35 ppm MFPs with a less expensive document feeder. Thus, the starting list prices are $7,489 for the IM 2500; $11,199 for the IM 3500; $12,619 for the IM 4000; $15,169 for the IM 5000; and $19,495 for the IM 6000.

In addition, Ricoh seems to have kept most of the same list prices for options as well. However, Ricoh has a harder time than most other MFP vendors when it comes to listing all available options in its brochures or its online configurator, and in providing comprehensive price lists.

These new A3 monochrome MFPs incorporate the same controller hardware, firmware and UI improvements that Ricoh introduced on its similar speed A3 color IM-series MFPs in 2019, and on the 70, 80 and 90 ppm A3 monochrome IM-series models it launched early this year.

However, it is worth noting that Ricoh in Japan mentioned two scan-related improvements in its announcement that appear to be new to this series; they were not mentioned for the previous IM series models. These improvements are faster productivity for the optional embedded OCR kit and when creating electronic data, such as PDF files.

The new B&W models all share the same platform. They have the same standard and optional MFP features, paper supply, and document feeder. But there are different supplies and finishing options for the 25 and 35 ppm models, versus the 40, 50 and 60 ppm models. This was also true of the previous products.

The supplies are not new. Toner for the 25 and 35 ppm MFPs yields 24,000 pages, and toner for the 40-60 ppm models yields 37,000 pages. Ricoh quotes average monthly volumes between 4,000 and 20,000 pages, and maximum monthly volumes that go from 15,000 to 50,000 pages.

Compared to the old MP models, the controller in the new IM monochrome MFPs has a slightly slower 1.36 GHz Intel Atom Apollo Lake processor, versus a 1.46 GHz Intel Atom processor. However, the other hardware specs have not changed. These include 2 GB of memory; a 320 GB hard drive with data overwrite and encryption; Gigabit Ethernet; a USB device port; a USB host interface; and an SD card slot.

WiFi with NFC is available for $739, and a smart card reader that integrates inside the MFP control panel is available for $109. However, Ricoh

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These new B&W models complete the transition from Ricoh's MP-series MFPs to its IM-series of "intelligent" devices. The subdued arrival of these models was in contrast to when Ricoh hosted a New York press event two and a half years ago to debut its first A3 color IM-series machines.

With a starting list price of $7,489, the new 25 ppm monochrome IM 2500 is the least expensive A3 model in Ricoh's lineup of so-called "intelligent" MFPs.

Remanufactured Ricoh and Canon Color MFP Models Ship in Japan

Ricoh and Canon announced additional remanufactured A3 office MFPs in Japan in the month of June. Both companies have a long history of formally productizing and selling such models there, typically with a "green" message.

On June 2, Ricoh announced the 30 and 45 ppm MP C3004RC and C4504RC. As the model numbers indicate, these are remanufactured versions of the MP C3004 and C4504 that Ricoh launched five years ago *(The MFP Report, Apr 16)*. They were replaced in early 2019 by the updated IM C3000 and C4500. The MP C3004RC and C4504RC replace the earlier same speed MP C3003RC and C4503RC in Ricoh's remanufactured MFP product line.

The C3004RC and C4504RC have been remanufactured in Japan, with reused parts representing 81% of the mass of the device. In addition, all of the power used in the remanufacturing process comes from renewable energy. Although a full range MFP-related options and solutions are available for the MP C3004RC and C4504RC, Ricoh offers only a subset of the paper supply options and finishing options that were available for the original products.

On June 22, Canon released the 40, 50 and 60 ppm iR ADVANCED C5540F-R, C5550F-R and C5560F-R. They are remanufactured — Canon says "refreshed" — versions of the iR ADVANCE C5540, C5550 and C5560 that Canon launched five years ago *(The MFP Report, Aug 16)*. These three new remanufactured MFPs replace the previous 40 and 51 ppm iR ADVANCE C5240F-R and C5255F-R remanufactured models. The C5560F-R is noteworthy as the fastest remanufactured color MFP that Canon has ever offered in Japan.

Canon says its latest refreshed devices have reused parts that represent 84% of each MFP's mass. That is up from 79% for the previous generation remanufactured MFPs. Canon offers its latest refreshed devices only as completely preconfigured products, with no options available.

Ricoh: IM Series Finished ➲ ... from p. 19

no longer offers a parallel port kit or a USB device server to connect to a second network.

In terms of MFP functionality, Qualcomm's PCL, PostScript and PDF emulations are standard. Ricoh charges $599 for Adobe PostScript, which is down from $739 on the previous MFPs; IPDS print support is available for $2,235; and a Unicode font set for SAP printing is $350. But Ricoh has finally dropped its old XPS print option. Additionally, the new MFPs can print from multiple operating systems, and they support AirPrint and Mopria for mobile printing.

Network scanning with user authentication is standard, and it supports all of the usual file formats and destinations. In addition, an embedded ABBYY FineReader OCR option to create searchable PDF files is available for $345. And the new MFPs still require a $739 file format converter to fully utilize the document server capability of the hard drive.

Lastly, a 33.6 Kbps fax option with JBIG is $1,425, which is up from $1,289 on the prior models, and an additional 64 MB of fax memory is available for $95. But Ricoh no longer offers optional second, third and fourth fax lines.

The new monochrome MFPs have Ricoh's latest generation Smart Operation Panel *(SOP)*, which runs Android-based software on a 10.1" color touchscreen. They include support for Ricoh's Embedded Software Architecture *(ESA)*, a Java solutions platform enables certain Ricoh and partner applications. The MFPs can also utilize Ricoh's Smart Device Connector mobile device app for touchless operation.

In somewhat of a departure, Ricoh in its marketing materials for these new B&W models does not mention by name its SMB-targeted Cloud Workflow Solutions Portfolio. The portfolio encompasses various Ricoh-developed cloud applications, connectors and workflows that are available on a monthly subscription basis, along with a few services-led solutions that require professional assistance from Ricoh or a dealer. Instead, Ricoh talks about its Smart Integration, which it says provides "document workflow automation" and is available "through a simplified subscription model."

Like other IM-series models, the new MFPs have Ricoh's Always Current Technology. This technology can be used to automatically update the firmware for customers' MFPs in order to add new features and capabilities. This can include improvements related to specific functions, like scanning and copying, as well as enhancements to security and usability.

All of the new B&W models have two 500-sheet universal trays, a 100-sheet bypass tray, duplex output, a 500-sheet exit tray, and a 220-sheet single-pass duplex document feeder. The document feeder has scan speeds of 120 ipm for simplex and 240 ipm for duplex; these speeds are up from the current 110 ipm for simplex and 180 ipm for duplex.

Customers can add several additional paper sources up to a maximum capacity of 4,700 sheets. A 550-sheet universal tray is $760; dual 550-sheet universal trays are $1,584; and a 2,000-sheet tandem letter tray is $1,909. With any of these options, customers can then add a 1,200-sheet side-mounted ledger tray for $1,909. There is also the choice of a $250 cabinet base or a $270 caster base.

For output, several options work with all of the new MFPs, starting with the 125-sheet single-bin tray for $535, a 250-sheet side tray, and a 250-sheet internal shift tray for $450. Moving up, customers can choose either a 500-sheet internal finisher for $1,455 *(except for the IM 6000)*; the industry's only internal multifold unit, which is $3,549; or a $205 bridge unit to connect a floorstanding finisher.

Alternatively, two 1,000-sheet floorstanding finishers are also available for all of the models. A so-called hybrid version that staples 50 sheets and has stapleless crimping for five sheets is $1,765. And a booklet maker version without stapleless crimping is $3,695. Lastly, a higher-end floorstanding 3,000-sheet staple finisher priced at $3,315 is available only for the IM 4000, 5000 and 6000. For each finisher, there is also a $999 hole punch kit is available.

Note that two additional finishers are available in Europe. There is a 250-sheet stapleless internal finisher for the 25-35 ppm MFPs, and there is a 2,000-sheet floorstanding booklet finisher for the 40-60 ppm MFPs.

Muratec Launches OEM'd Trio of Low-End Color bizhubs in Japan

On June 10, Muratec announced three lower-end A3 color MFPs for sale starting in July exclusively in Japan. Indeed, Japan is the only remaining country where Murata still owns an office MFP sales company. And even there, Konica Minolta has owned a 19% stake in Muratec Sales Co. Ltd. dating back to 2013.

Muratec's latest MFPs are the 22 ppm MFX-C5220 and MFX-C5220K, and the 28 ppm MFX-C5280. They are the company's first new products in Japan in eighteen months, They replace the 22 ppm MFX-C2260N and MFX-C2260NK, and the 28 ppm MFX-C2860N that shipped three years ago *(The MFP Report, Jun 18)*. These are Muratec's least expensive color MFPs. And with both sets of products, the only difference in the "K" models is that they use special consumable kits that are designed for low-volume printing.

The new Muratec A3 color products are based on a recently updated entry-level MFP platform that Konica Minolta sells in most countries, but not in the US. Konica Minolta's Muratec America unit also does not sell models based on these MFPs. However, the platform itself was apparently was actually developed by Taiwan-based TECO Image Systems.

In terms of the bizhub product line, the MFX-C5220/MFX-C5220K and MFX-C5280 are equivalent to the same speed C227i and C287i that Konica Minolta launched last year *(The MFP Report, Oct 20)*. As with other color bizhubs that Muratec OEMs for sale in Japan, it does not appear the new models support any of Konica Minolta's i-Option MFP feature firmware kits or its OpenAPI solutions platform.

Muratec's list prices for the new models are unchanged at ¥1,040,000 *($9,365)* for the 22 ppm models and ¥1,180,000 *($10,625)* for the 28 ppm model.

PRODUCTS

Ricoh has retained the same list prices from the previous models for the new monochrome IM-series MFPs, although it is no longer offering a configuration of the 25 and 35 ppm MFPs with a less expensive document feeder. And Ricoh seems to have kept most of the same list prices for options as well. However, Ricoh has a harder time than other MFP vendors when it comes to listing all available options in its brochures or its online configurator, and in providing comprehensive price lists.

Canon Consolidates Midrange A3 Line and Extends A4 Color Line

PRODUCTS

Canon USA made two announcements in June that respectively updated and expanded the range of imageRUNNER ADVANCE DX models it launched just last year.

In early June, Canon USA announced a half-dozen midrange A3 color and monochrome MFPs that share an updated common platform. And in late June, Canon USA announced two models *(each available in two configurations)* that extend its A4 color MFP product line upward in speed.

Both sets of new office MFPs include faster output speeds than the recent products they replace, along with relatively modest changes to the iR ADVANCE DX series embedded MFP controller that Canon launched last year.

A3 Refresh. On June 1, Canon USA announced four midrange A3 color MFPs and two midrange A3 monochrome MFPs. The C5840i, C5850i, C5860i and C5870i have respective speeds of 40, 50, 60 and 70 ppm for both color and B&W output. And the monochrome 6860i and 6870i have respective speeds of 60 and 70 ppm. Canon had actually announced these products first in China back on May 19, and it has also announced them in Japan on July 6.

All six of these new MFPs are based on an updated version of an existing Canon engine that dates back to 2009. Most recently, that engine was used last year for the DX C5700i color series and the monochrome DX 6000i device.

The 40, 50, 60 and 70 ppm C5800i series color MFPs are updated replacements for the C5735i, C5745i, C5750i and C5760i, which have respective speeds of 35, 40, 50 and 60 ppm. Thus, the C5840i and C5850i are each 5 ppm faster than the models they replace, and the C5860i and C5870i are both 10 ppm faster than the products they replace. Canon launched the C5750i a year ago *(The MFP Report, Jun 20)*, and the C5735i, C5745i and C5750i debuted just six months ago *(The MFP Report, Dec 20)*.

The changes are more significant on the B&W side of the iR ADVANCE DX product line. The 60 and 70 ppm 6860i and 6870i replace the 55, 65 and 80 ppm 6755i, 6765i and 6780i that Canon released a year ago *(The MFP Report, May and Jun 20)*. They also replace the 60 ppm 6000i that shipped at the end of 2020 *(The MFP Report, Dec 20)*.

The current 6755i, 6765i and 6780i utilize a high-end platform that is bigger, heavier and more costly than the platform used for the new models. Specifically, last year's midrange B&W products shared the same platform as the C7700i series color MFPs, which have 60-70 ppm color speeds and 65-80 ppm B&W speeds. Conversely, the 6860i and 6870i share the same platform as the current 6000i.

The timing of Canon's new A3 launch is definitely odd. The new MFPs are replacing products that have only been available for six to twelve months. That may be a record for the shortest-lived A3 office MFPs. We cannot imagine this was Canon's original plan. It could be that these products were supposed to have shipped last year, but Canon ran into problems and had to delay the launch. The fact that the 6000i was the only B&W product based on the C5700i color engine last year had always looked like an strange move.

What is clear now is that Canon's new midrange A3 models have benefitted in two important ways. First, Canon has managed to get more speed from its midrange color engine with the new C5800i color models. Second, Canon has been able to significantly reduce the cost of its new 6800i B&W models by using that same midrange C5800i color engine, instead of the higher-end C7700i color engine.

The differences in prices for Canon's new MFPs are decidedly different for the color models and the B&W models.

The new color MFPs are priced the same as the comparable speed products they replace. Thus, the C5840i is $17,000; the C5850i is $20,000; the C5860i is $23,000; and the C5870i is $28,000. Because Canon has not replaced the discontinued 35 ppm C5735i, there is now a bigger gap in speed and price between the new 40 ppm C5740i and the existing 30 ppm C3730i, which is priced at $11,000. Conversely, the new midrange 70 ppm C5870i costs less than the heavier-duty 65 and 70 ppm C7765i and C7770i, which are respectively priced at $32,000 and $39,000.

By switching to a less expensive platform, Canon with its new B&W machines has been able to reduce prices in a declining market segment, while also probably boosting its margin. The new 60 ppm 6860i lists for $16,500, which is the same price as the current 60 ppm 6000i and less than the $18,000 price for the current 65 ppm 6755i. The new 70 ppm 6870i lists for $22,500, which is much less than the $30,000 price for the existing 80 ppm 6780i. In addition, the list prices for various paper supply and finishing options are lower for the new monochrome machines. Moreover, Canon's midrange B&W and color A3 office MFPs will for the first time share the same paper-handling options.

It is also possible the new supplies for the C5800i series and 6800i series enable lower page costs than with the current models. Yields for the color machines have gone from 69,000 to 71,000 pages for the black toner and stayed at 60,000 pages for the color toners. In addition, Canon has added a new set of lower-yield color toners that print just 26,000 pages. And with the new monochrome MFPs, the toner yield has gone from 56,000 pages to 71,500 pages.

Canon also says the new CS2 chemical toners for its midrange MFPs have a lower melting point, which can mean using less electricity to fuse. In fact, switching to a midrange platform

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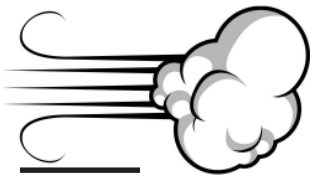

The imageRUNNER ADVANCE DX series models that Canon is now replacing were launched just six top twelve months ago. That may be a record for the shortest-lived office MFPs. It's hard to imaging this was what Canon originally planned to do.

Canon has been able to stretch its midrange A3 color platform to create the 70 ppm monochrome imageRUNNER ADVANCE DX 6870i. The new MFP lists for $22,500, which is $1,500 less than the 5 ppm slower 6765i it replaces.

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for the new B&W machines has cut their Total Energy Consumption *(TEC)* values by half. The TEC values for the new color MFPs have not changed, but the machines now have a single electrical connection, even when equipped with a finisher. Canon in Japan calls this an industry first in this segment. All of the new MFPs also have faster warm-up times and first-page times. In addition, Canon said they have "real-time motor current control," which reduces operating noise.

The switch from a high-end engine to a midrange engine for the new 6800i series monochrome MFPs is evident in the weights of the new products *(205 vs. 492 pounds)*. And it is reflected as well in lower standard paper capacity *(1,200 vs. 4,360 sheets)*; lower maximum paper capacity *(6,350 vs. 8,020 sheets)*; and reduced finishing capacity *(3,250 vs. 3,500 sheets)*. And while an external EFI Fiery option was available for the old 6700i series models, there is no such option for the new 6800i series MFPs.

However, once one gets past that key platform change in the B&W models — and the changes in speeds, prices and supplies for both the color MFPs and B&W units — the other changes in the new A3 DX-series MFPs are less significant.

There are some changes to the MFP controller hardware. Canon has upgraded the speed of its custom dual-core processor, from 1.75 GHz, to 1.8 GHz. It has boosted the base memory, from 3 GB on the current B&W machines and 4 GB on the existing color products, to 5 GB on all of the new models. And Canon has switched from using hard drives *(250 GB standard and 1 TB optional)*, to using more robust solid state drives *(256 GB standard and 1 TB optional)*.

Other controller features remain the same, including Gigabit Ethernet, USB 2.0 and 3.0 host interfaces, a USB 2.0 device port, and WiFi. Canon did not provide a complete list of prices showing controller options, but we understand that the available options include NFC, Bluetooth LE, a 256 GB or 1 TB solid state drive, and a memory mirroring kit.

The new MFPs also continue to support Canon's MEAP Java solutions platform, as well as MEAP Web, although Canon does not say or do much with partner solutions these days. In addition, the MFPs use Canon's Unified Firmware Platform *(UFP)*, which allows updated firmware and new features to be added to these products in the field over time.

For printing, the new MFPs have PCL emulation, Adobe PostScript, and Canon's UFR II language, and there is support for direct printing of PDF and other image files. In addition, AirPrint and Mopria are supported for mobile printing. The only print options are an $840 barcode kit and a $473 international PCL font set.

The network scanning features remain the same, with authenticated scan to e-mail, file server and user inbox, along with embedded OCR to create searchable PDF files. Also standard are more advanced features for sending encrypted PDF files; adding digital device signatures to PDF files; identifying the user sending a particular PDF document; and creating trace and smooth PDF files when scanning.

Fax is optional across all of the new A3 models. A single-line 33.6 Kbps JBIG fax kit is $840; a second fax line is an additional $525; and third and fourth fax lines are available together as a $1,050 upgrade. There is also a $350 IP fax expansion kit, and a $420 remote fax kit.

And for enhanced security, Canon continues to support the TLS 1.3 encryption protocol; FTPS Support for scanning; and embedded McAfee antivirus support.

While no EFI Fiery RIP is available for the new B&W models, there is an updated external Fiery for the new C5800i series color MFPs. The imagePASS-R1 is believed to list for $4,950, like the imagePASS-P2 for the C5700i series models. The PC-based Linux RIP is physically larger and uses newer Fiery software *(FS400 vs. FS350)*, but the key hardware specs have not changed. The RIP has a 3.3 GHz Intel Pentium processor, 4 GB of RAM, and a 500 GB hard drive.

While we have already noted that the new 6800i series monochrome MFPs weigh less than half as much as the previous models, Canon has also managed to reduced the weight of the new C5800i color models from their very similar pre-

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NT-ware uniFLOW Online Update Supports More Devices & Brands

Germany-headquartered NT-ware — which is 70% owned by Canon Europe — announced a new release of its cloud-based uniFLOW Online solution in June.

Among other things, uniFLOW Online 2021.2 adds new printing support for additional Canon and third-party hardcopy devices. For several years, uniFLOW Online and the server-based uniFLOW software have been the bestselling solutions for Canon USA and Canon Europe. But being able to support multivendor environments is critical for both Canon's customers and its multiline dealers.

Toward that end, uniFLOW Online 2021.2 makes it possible to release print jobs from any make or model of printer or MFP using the update uniFLOW Online mobile device app. Previously, this app supported only Canon devices.

In addition, uniFLOW Online 2021.2 provides enhanced support for Canon devices, including some imageCLASS/i-SENSYS A4 laser products and also Canon's imageRUNNER ADVANCE DX office MFPs. The new version allows users to assign a cost center when printing to these devices, and secure print jobs can now be routed without any client-based software or network connection between a printer and a PC.

NT-ware said it has taken a first step in creating a more "modern" user interface for uniFLOW Online 2021.2 on the iR ADVANCE DX-series MFPs Canon started shipping a year ago. Also, with the growing popularity of the Microsoft Teams communications platform, NT-ware in the new uniFLOW Online release has added support for directly scanning to and printing from Teams. Lastly, uniFLOW Online has for some time allowed educational establishments to charge students for prints and copies, but the new 2021.2 release now lets students add to their accounts via PayPal.

PRODUCTS

Switching from a high-end engine to a midrange engine for the 6800i B&W MFPs has resulted in almost a 60% lower weight for the base configuration.

uniFLOW online

For several years, uniFLOW Online and the server-based uniFLOW software have been the bestselling solutions for Canon USA and Canon Europe. But being able to support multivendor environments is critical for both Canon's customers and its multiline dealers.

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decessors by about 25% to round 232 pounds. Canon has also modified the industrial design somewhat. Conversely, the functional aspects of the design are unchanged.

Both sets of new MFPs have a tilting 10.1" color touchscreen control panel with the same the UI. The control panel can be supplemented with a $180 numeric keypad, and a $110 USB keyboard with a separate $250 keyboard stand.

Each of the new midrange MFPs ships with dual 550-sheet universal cassettes, a 100-sheet bypass tray, duplex output, a 250-sheet internal exit tray, and a 200-sheet single-pass duplex document feeder. The document feeder has scan speeds of 135 ppm for simplex and 270 ipm for duplex in color or B&W. The feeder can also scan special items (*e.g., checks, business cards, receipts)*, and it has automatic skew correction *(but not misfeed detection)* when scanning.

Customers can add either a 2,450-sheet high-capacity tandem letter deck for $1,900, dual 550-sheet universal cassettes for $1,523, or a $300 cabinet. With either of the paper supply options, customers can also then add a $2,205 side paper deck that holds 2,200 letter-size sheets.

For output, there is a choice of three finishers. A $1,260 inner finisher hold 545 sheets and has corner stapling, plus a $710 optional hole-punch kit. Alternatively, there are two floorstanding finishers that each require a $280 buffer pass unit. The $2,555 staple finisher holds 3,250 sheets in two trays, and the $3,920 booklet finisher stitches 20 sheets. Both finishers have an $893 hole-punch kit. Other output accessories include a $105 inner two-way tray, a $47 copy tray, a $63 utility tray, and a $300 convenience stapler.

A4 Extension. On June 24, Canon USA announced two A4 color MFPs that are each available in two configurations. The iR ADVANCE DX C478iF and C568iF are desktop devices with letter-size speeds of 50 and 60 ppm; the corresponding A4 speeds are 48 and 58 ppm. And the C478iFZ and C568iFZ have the same speeds, but they have a modified industrial design with more space between the scanner and the print engine to accommodate an internal finisher.

Canon USA said these new MFPs "support today's work environments" where smaller devices are increasingly popular. Interestingly, Canon had not net announced these new A4 color MFPs in Japan or anywhere else by the end of June.

The C478iF and C478iFZ are modestly updated replacements for the 50 ppm C477iF and C477iFZ color MFPs that Canon USA launched just six months ago *(The MFP Report, Dec 20)*. And the 60 ppm C568iF and C568iFZ represent new models for this product line. As Canon noted, the C568iF and C568iFZ are the fastest A4 color MFPs it has ever created. It also makes sense that Canon is now getting more than just a single color MFP from this A4 platform. Having said that, it is not clear why Canon did not include a 60 ppm model in its December 2020 product launch.

The new A4 color MFPs share the same platform as the 55, 65 and 75 ppm 527iF/527iFZ, 617iF/617iFZ and 717iF/717iFZ A4 monochrome iR ADVANCE DX models that Canon launched alongside the A4 color C477iF and C477iF in December. As a result, all of these A4 products share the same standard and optional paper-handling features.

The list prices for the new C478iF and C478iFZ are $6,000 and $7,300, respectively. These are the same as for the previous models. And the C568iF and C568iFZ are each priced $800 higher at $6,800 and $8,100, respectively.

The controller in the old and new A4 color MFPs is nearly identical. The only change is that the new models have a 256 GB solid state drive, rather than a 250 MB hard drive. There are also a few differences in the controller for the new A4 models versus Canon's latest A3 models. The custom Canon dual core processor is slightly slower *(1.75 vs. 1.85 GHz)*, and there is less memory *(4 vs. 5 GB)*. Additionally, these A4 color MFPs all come standard with a single-line 33.6 Kbps fax modem that has JBIG compression and is paired with 30,000 pages of fax memory. There is also a $350 IP fax expansion kit, but no additional fax lines can be added.

Otherwise, nearly all of the standard and optional MFP, device management, software updating, security, and solutions capabilities of these new A4 color MFPs match those described for the new A3 models.

Like Canon's other A4-size DX series MFPs, these new color products have a sideways "copier-style" paper path. The C477iF and C568iF weigh 101 pounds; they are 21" wide, 25" deep and 26" high; and they have a 400-sheet internal exit tray. The C477iFZ and C568iFZ weigh 20 pounds more; they are 8" taller; and they come with a 900-sheet, three-tray internal finisher with single-position stapling.

All four of the new A4 color MFPs have a 550-sheet letter/legal paper tray, a 100-sheet multipurpose tray, duplex output, a legal-size scanner, and a 100-sheet single-pass duplex document feeder that has top scan speeds of 100 ipm for simplex and 200 ipm for duplex in both color and B&W. The MFPs also have the same 10.1" color touchscreen control panel as the A3 models, and they support the same $250 keyboard stand and $110 USB keyboard.

Customers can add another 550-sheet letter/legal cassette for $420; a 500-sheet letter/legal cassette with a wheeled cabinet base is $560; or a trio of 550-sheet cassettes with a wheeled base is $1,200. That means the maximum paper input supply is 2,300 sheets. The only output accessory is a pricey $330 convenience stapler.

Finally, these new MFPs are unusual in the dealer and direct sales channels in that they use all-in-one toner cartridges. The supplies are the same as for the previous A4 color models, with two sets of cartridges are available. The black toner cartridges have yields of either 11,000 pages or 33,000 pages, and the color toners cartridges have yields of either 9,000 pages or 27,500 pages.

PRODUCTS

The new 60 ppm imageRUNNER ADVANCE DX C568iF is the fastest A4-size color MFP that Canon has ever developed. The C568iF has a starting list price of $6,800.

The C478iF/C478iFZ and the C568iF/C568iFZ are unusual in dealer and direct sales channels in that they use all-in-one toner cartridges.

PRODUCTS

Lexmark Adds Features to Its End-User & Partner Cloud Print Solutions

On June 29, Lexmark announced enhancements to its twin cloud print services offerings. The two offerings are Cloud Print Management *(CPM)* for end-user customers of all sizes, and Cloud Fleet Management *(CFM)* for channel partners, including IT resellers and office equipment dealers belonging to its Business Solutions Dealer *(BSD)* program.

These two cloud print offerings have been available for almost three years *(The MFP Report, Oct 18)*. They share the same core technology, which is generically called Lexmark Cloud Services. However, that is not a specific offering. A recent third component of Lexmark Cloud Services, the Lexmark Cloud Connector, works with both CPM and CFM.

Lexmark announced two important enhancement to its end-user CPM solution. First, there is new support for non-Lexmark MFPs and printers via an external adapter that attaches to those devices and provides job release with a badge. We suspect this adapter may be OEM'd. Second, Lexmark has added guest printing support with job release enabled by a PIN code that is e-mailed after the user submits a job.

Lexmark announced three key enhancements to its CFM solution for channel partners, although these features appear to be available only for Lexmark MFPs and printers. First, partners are now able to monitor the levels for supplies beyond just toner cartridges to also include photoconductors and waste toner bottles. Second, partners can now remotely customize the control panel screen on an MFP or printer. And third, Lexmark has moved its copy, scan and fax page counters adjacent to its print page counters.

Fujifilm Adds DocuWorks SaaS Suite

On June 23, the rechristened Fujifilm Business Innovation announced its first new MFP-related solution since formally ending its past relationship with Xerox on April 1.

Specifically, the company announced a cloud-based SaaS offering called the DocuWorks Subscription Suite. As the name indicates, this solution is based on the DocuWorks "document handling" solution that Fuji Xerox has been selling in Japan, as well as across the Asia Pacific region.

DocuWorks has actually been around for more than twenty years. Four years ago, the old Fuji Xerox said it had sold more than four million DocuWorks licenses just in Japan, where it claimed the software had a 40% market share for personal document management software.

The new DocuWorks Subscription Suite melds four existing Fujifilm document-related cloud solutions into a single SaaS subscription. The specific components that comprise the Suite are: (1) the DocuWorks 9.1 personal desktop document solution that debuted on April 1; (2) the DocuWorks Tray 2 solution that links DocuWorks to Fujifilm's MFPs for sending and receiving documents; (3) the DocuWorks Cloud Connector, which links DocuWorks to various cloud services, including Box, Dropbox, OneDrive and Google Drive; and (4) the DocuWorks Document Information Entry 2, which enables document indexing manually or via zonal OCR.

The combined solution is available in Japan at a starting monthly price per user of ¥1,400, or about $12.75. Each user can access the DocuWorks Subscription Suite from up to five PCs. To help put this price in perspective, DocuWorks alone, without the other three applications, has a monthly subscription price per user of ¥800, or about $8.95.

Konica Minolta Finally Launches Dispatcher Suite for MFPs in Japan

On June 29, Konica Minolta announced availability in Japan of its Dispatcher Suite embedded MFP software 28 months after the same software was released in the US and Europe *(The MFP Report, Jan 19)*. Japanese hardcopy vendors have long had an aversion to selling US-developed MFP applications in Japan, but this delay was exceptionally long.

Dispatcher Suite is composed of two applications: Dispatcher Phoenix for document capture and workflow; and Dispatcher Paragon for print management. Both of these are embedded applications that run on bizhub MFPs that support Konica Minolta's Open API/bEST software platform.

Konica Minolta developed Dispatcher Phoenix in the US, where it has been available since 2010. The capture software shipped globally in 2016, including in Japan. Dispatcher Phoenix is available in Foundations and Professional versions. The latter is included in Dispatcher Suite, which can also include any of the vertical modules *(e.g., healthcare, education and government)* or specialized modules *(e.g., ECM)* that Konica Minolta has created over the years.

In contrast, Dispatcher Paragon is an OEM version of SafeQ from YSoft, which is headquartered in the Czech Republic. Dispatcher Paragon was launched concurrently in the Europe and the US in 2019, but not in Japan.

Dispatcher Suite

Dispatcher Suite consists of the US-developed Dispatcher Phoenix for document capture and workflow; and Dispatcher Paragon, which is an OEM version of YSoft's SafeQ print management software. Dispatcher Suite was released in the US and Europe in January 2019.

KMBS Europe Partners with EveryonePrint

Konica Minolta Business Solutions Europe and Denmark-based EveryonePrint A/S announced – on June 2 and 9, respectively – a pan-European partnership to sell and support EveryonePrint's Hybrid Cloud Platform (HCP). With this agreement, EveryonePrint's relationship with Konica Minolta has become more extensive than with any other MFP vendor. Konica Minolta has been working with EveryonePrint in the US since 2015 and has made HCP available since it was launched (The MFP Report, Dec 18). Konica Minolta has also been selling HCP in the UK since 2019.

EveryonePrint HCP provides secure cloud-native mobile printing, along with basic print management. HCP can be hosted publicly by Konica Minolta or privately by a customer. Either way, the customer pays a monthly usage-based SaaS fee that can easily be scaled up or down, depending on the number of users that are supported.

Users can access EveryonePrint HCP from any device, with no need to install drivers. All jobs are sent to a single global print queue that has full end-to-end encryption, so documents can be printed anywhere but only when the user wants. To release a job, the user simply authenticates at a print device using an embedded bizhub MFP device app, a mobile device app, a QR code, a card reader, or PIN. The embedded MFP app is compatible with most current and recent bizhub devices, but older models may require the former LK-101 i-Option kit to enable web access.

QBit's First SOC is Powering MFPs and Printers from Fujifilm and NEC

TECH TOPICS

After five years, the first hardcopy devices to utilize the inaugural system-on-a-chip *(SOC)* processor developed by Boston area QBit Semiconductor have finally shipped. Those new products are the ApeosPrint C320dw printer and Apeos C320z 4-in-1 device — including various geographic model variants — that Fujifilm Business Innovation announced in April *(The MFP Report, Apr 21)*. Also using the new chip are the OEM'd Color MultiWriter 4C150 printer and 4F150 MFP that NEC launched this month in Japan *(story on p. 18)*.

These are all compact 30 ppm A4 *(31 ppm letter)* desktop color devices that use a cleansheet LED engine developed by Fuji Xerox. In some ways, the relationship between QBit and Fujifilm is not surprising. The predecessors to the companies — Qualcomm and Fuji Xerox — had worked together on previous generations of their respective products.

QBit was formed by a long-time group of silicon engineers with expertise in printing who left Qualcomm in 2016. The company has raised a rather modest $12.5 million from New Kinpo Group in Taiwan. QBit had originally expected additional investments from "a major Japan semiconductor company and a major Japan printer company," but those deals never materialized. However, the Japanese printer company did end up providing funds for engineering services.

QBit has close to 60 employees spread across Taipei, Boston and Tokyo. Its main thrust has been developing the QB63xx family of ARM-based SOCs for MFPs, printers, scanners, and 3D printers. The new chips over time will replace the aging Quatro line of SOCs that are still sold by both Qualcomm and QBit. The last new Quatro SOC was launched by CSR in 2015. That was the year Qualcomm bought CSR. Shortly thereafter, it stopped funding new Quatro chips.

QBit had taped out a prototype of the QB63xx silicon in mid-2018; a production version of the chip followed in mid-2019; and the chips entered mass production in the spring of 2020. It has taken another year for the first chips to appear in new hardcopy products. QBit had indicated last year that it expected the first products to utilize its new chips would be an A4 color printer and an A4 color MFP — which are the Fujifilm models — and a yet-to-be seen A3 monochrome MFP.

The QB63xx product line actually encompasses eight different ARM-based chips. Those chips differ in terms of their clock speed *(i.e., from 500 MHz to 1.125 GHz)* and the number of cores *(i.e., single or dual core)*. Based on the controller specs Fujifilm has provided, it appears the ApeosPrint C320dw printer and Apeos C320z 4-in-1 device are using the QB6310 chip, which is a 667 MHz single-core design.

All of the QB63xx chips share the same architecture as the current Quatro 53xx and 55xx series SOCs that Qualcomm and QBit are still selling. That is important because it makes it relatively simply for vendors who have used the Quatro chips to migrate to the new QBit chips. Indeed, this was the case with Fujifilm, which used a Quatro 55xx series chip to power its previous generation of A4 color models.

The new QBit chips use 28nm silicon process for reduced power and increased performance, and they have an ultra low power 65 mW sleep mode to meet the requirements of Energy Star and similar programs. The new chips also have programmable printer and scanner interfaces "to directly control virtually any printer *(laser, LED, inkjet, thermal)* or scanner *(CIS, multisegment CIS, CCD)*."

QBit's new QB63xx family of chips share the same architecture as the Quatro 53xx and 55xx SOCs that CSR launched in 2012 and 2015, and that Qualcomm still sells. This makes it simple for OEMs who have used the Quatro chips to migrate to the QBit chips. This was what Fujifilm did.

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