



Awesome all-in-**+**ones

When you don't want to sacrifice precious desk space to multiple devices, all-in-ones come to the rescue. Whether you want a plain paper copier and fax, or a photo printing station that will also scan your old film strips and slides, there's an all-in-one to fit the bill.

By Bruce Buckman



HP Photosmart C3180

HP's budget Photosmart C3180 is a four-colour printer, using a tri-colour cartridge and a black cartridge. Like other printers using this set-up, it uses just the tri-colour cartridge when you print photos. You can replace the black cartridge with a photo cartridge to turn it into a six-colour printer if you wish, but we tested it in the default set-up.

Surprisingly, when the photo prints were laid out, the C3180 turned out some of the best prints of the bunch – and not just against the other budget printers, but against the most expensive models too. It did a fantastic job at producing rich colour and maintaining detail in shadow areas. In terms of image quality, this little printer punches way above its weight.

But don't get carried away just yet. The C3180 has two areas of weakness. The first and least significant is speed. Its default quality setting when you choose photo printing as an option in the print driver is Best, which produces prints at a crawl (10 minutes 24 seconds for an A4 borderless print, for example). The good news is that you can override this default and set print quality to Normal – the result is almost as good and the speed increase significant (4 minutes 1 second for the same print).

The second issue is not so conveniently fixed: economy. As we've found in the past,

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HP Photosmart C3180 (\$149)

tri-colour cartridges are not economical when printing photos. The tri-colour cartridge in the C3180 started to give out when we were on our ninth A4 borderless print (only four of which had been at the Best quality setting, which uses more ink). It doesn't help that the cartridge that ships with the printer is a lower yield 5ml cartridge, not the standard 7mls, but even that won't get you too much further. Despite its excellent quality, the C3180 isn't a good choice if you'll be doing a lot of photo prints.

For run of the mill plain-paper printing

and copying, where ink coverage is not so heavy, the C3180 should prove more economical. Again, it isn't the fastest printer out there, but it produced plain paper, colour, and black and white prints of a very high quality. Text was sharp and black without any noticeable bleeding into the paper.

You don't get a colour LCD, which isn't a surprise at this price. There's a small monochrome LCD with four buttons beside it that lets you toggle different settings such as quality, size and number of copies.

To print images from a memory card, you've got two options. You can press the Photosmart Express button, which launches the software on your PC. You must first copy the images from the card to the PC, before you can use the application to print or view the images. The PC-free option is to print a proof sheet, which you then mark with a pen to select images and options, and then scan to initiate the print process. It's a fairly efficient way of printing, without a colour LCD to select options, but a menu system to select images by number would have been a good addition.





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Lexmark X3550 (\$149)

Lexmark X3550

The Lexmark X3550 shares much in common with the Photosmart C3180. It uses a similar 4-colour, two cartridge set up (with the option to go 6-colour by replacing the black cartridge with a photo cartridge), and like the HP produces photo prints that preserve shadow detail and fine detail in images (such as the detail in animal fur in one of our test images).

Its colour reproduction was not as good as the HP's, with some images displaying a slight red colour cast. Its plain paper copies and prints were very good, although it did not reproduce greyscale images on plain paper as well as the HP using everyday print modes.

It was faster than the HP at all printing tasks, but print economy suffers in the same manner as the HP. Again, despite the surprisingly good quality of its photo prints, we can't recommend it for volume printing of photos. Buying just two cartridges might seem more economical than having to buy four or more separate cartridges, as found in more expensive printers, but you'll end up paying more in the end since you must throw away a tri-colour cartridge when just one of the

three inks inside is exhausted. On the other hand, if you restrict your photo printing to modest amounts and are more concerned with plain paper printing of standard documents, the Lexmark X3550 should serve you well.

Like the C3180, the X3550 doesn't give you a colour LCD at its cheap price. If

you want to print images from a memory card you can use the same proof sheet scanning method the HP uses, but unlike the HP you can also choose options via the monochrome LCD and print images that way.

If you want to share your printer on the home network, then the X3550 has an optional wireless print server available. Alternatively, you might consider the \$249 Lexmark X4500, which comes ready-equipped with the print server.

Epson Stylus CX5900

The CX5900 is a four-ink printer using separate colour cartridges (black, cyan, magenta, yellow). Its photo prints were a match for the HP C3180, and in some cases were slightly better – the Epson did a better job of printing areas of nearly solid colour without any blotching or banding. It maintained areas of fine detail and shadow detail well, and also did a very good job of reproducing colours in the photo-quality colour photocopy test, outperforming both the HP and Lexmark. It also gave one of the best results when printing a difficult image from a memory card, which some of the more expensive printers tended to print with over-saturated reds.

It handled plain paper colour and text



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Epson Stylus CX5900(\$249)

well, although at the default settings it tended to put more black ink on the page than the HP and Lexmark, which resulted in slightly dark greyscale images. Nor was it particularly speedy, with its A4 borderless photo prints taking 8 minutes 28 seconds, while its 10-page text and greyscale document on plain paper took 5 minutes 6 seconds, the slowest of the eight printers.

For \$249 you get a few more features, most notable being the colour LCD screen. This makes choosing and printing images directly from a memory card much easier. You can also use the proof sheet scanning method to choose images to print from a card.

The CX5900 has a logical control panel that puts many common options right on the panel rather than buried in the menus. For example, you can choose between three common paper types and paper sizes simply by toggling a couple of buttons, while the memory card button can be used to quickly toggle between selecting photos, printing an index sheet, printing all, and printing from the index sheet. About the only omission is buttons for colour or black and white copying; instead, you toggle

between copy modes on the LCD.

If you want a cheap multifunction printer that does double duty as plain-paper workhorse and a photo printer, the CX5900 is our choice.

Canon MP600

If you're in a hurry then Canon's MP600 is probably the all-in-one for you. It was, overall, the fastest printer here, just beating out its big brother the MP960. The MP600 pops out best quality A4, borderless photo prints in just 2 minutes 27 seconds. From scan to output took just 1 minute 59 seconds for a photo-quality A4 copy. Only the OfficeJet Pro L7580 could outpace it at plain-paper printing overall, and it couldn't match the Canon for speed of photo prints.

At \$399, the MP600 sits in the middle of the group on price. The extra money buys you some welcome additions compared to the cheaper models. There is 2.5-

inch colour LCD, which is put to good use both as menu interface and to enable welcome features such as image trimming when printing from a memory card. An attachment lets you print onto a CD/DVD surface. You also get duplex printing; an IrDA port for printing from a compatible mobile phone; and there is also an optional Bluetooth adapter for wireless printing from phones or PC.

The MP600 is a four-colour printer with five ink tanks; you get both a photo black cartridge



Canon MP600(\$399)

How fast can you go?

Multifunction printer speed tests

Printer	A4 photo ¹	A4 colour photo-copy ²	A4 Colour PDF	10-page text and greyscale doc ³	10-page plain text doc
Budget					
HP Photosmart C3180	10:24 ⁴	8:13	1:08	3:09	1:59
Lexmark X3550	6:20	5:51	0:55	2:51	1:23
Epson Stylus CX5900	8:28	3:48	0:53	5:06	4:06
Canon MP600	2:27	1:59	0:33	2:39	1:36
High-end					
HP OfficeJet Pro L7580	4:14	3:44	0:42	1:14	1:08
Lexmark X9350	5:44	5:37	0:55	3:07	1:52
Epson Stylus Photo RX650	5:24 ⁵	4:58	0:46	4:23	3:59
Canon MP960	2:23	2:06	1:04	2:58	1:10

CHART NOTES: ¹ A4 borderless print using best photo quality settings. ² A4 using best photo quality settings. ³ 10-page Word doc using multiple fonts and sizes, and greyscale images. ⁴ Setting the printer to Normal instead of Best quality reduces print time to 4:01 with only a minimal loss in output quality. ⁵ Setting the printer to use Photo instead of Best Photo quality reduces print time to 2:12 with only a minimal loss in output quality.

and a larger black cartridge for non-photo printing, in addition to cyan, magenta and yellow cartridges. In keeping with previous Canon printers we've tested, the MP600 produces very rich photo prints with strong contrast. The result is images that can look more vibrant than those from the Epson printers, for example, but at the expense of some loss of fine detail and shadow detail. The approach you prefer is really a matter of personal preference.

The MP600 did a very good job matching the colour of the original in the photo-quality colour copy test, but not quite as good as the Epson CX5900. Its plain paper prints were good, but like the Epson CX5900 it tended to over-ink solid blacks and greyscale images on plain paper.

In addition to Canon's own suite of apps, the printer comes with ArcSoft PhotoStudio and ScanSoft OmniPage SE for OCR work. The MP600 is feature rich when it comes to standalone printing. The trimming feature is easy to use, and lets you control the size and position of the crop.

In keeping with Canon printer design of the past few years, the MP600 has a paper cassette under the printer in addition to the vertical rear paper feed tray, which mean you can load different media in each and flip between them with the

paper feed switch. Alternatively, you can load just the lower paper tray and keep the rear tray closed, which helps keep dust out of the printer.

Lexmark X9350

Like the OfficeJet Pro L7580, Lexmark's X9350 is pitched to the home office or small business user looking for an office task-oriented all-in-one (with fax) to add to the network. In addition to USB and Ethernet ports, it comes with a built-in wireless print server that supports WEP, WPA and WPA2 encryption.

Unlike the L7580, it isn't so adept at being a photo printer as well. It uses a two cartridge, four-colour ink configuration (with the option to replace the black cartridge with a photo cartridge for a six-colour setup) but, strangely, its photo printing results were noticeably worse than the much cheaper Lexmark X3550. Like the X3550, there was a (slight) tendency for reds to be over-emphasised in prints, but its biggest weakness was the way it lost detail in fine areas, a fault that was most evident on the fur of animals in several test images.

When doing photo-quality copies, it did a decent job of colour matching, but



the scanner produced coarse graduations. And with its tri-colour cartridge, economy when doing photo prints was poor; we got our first low-ink warning after just seven best-quality A4 borderless prints.

If you want to print from a memory card, the L7580 provides a colour LCD for choosing your prints and options, although its menu interface is a little clunky; you need to dive into and then all the way back out of menus when setting print options. You use the LCD for toggling between modes and setting options, and you also need to use it to toggle between colour and black and white copying – there are no dedicated buttons for the two modes on the control panel.

As a plain paper printer and copier, however, it performs well, handling solid blacks and greyscale images on plain paper without over-inking. Its speed was middle of the road. There is a built in duplexer for double-sided printing. The printer has an auto-sheet feeder on top for use when scanning or faxing. There is a paper cassette tray at the bottom, with print jobs output on top of it, and you can add a second tray underneath if you wish. You can set up a phone book directly on the fax, create fax groups and speed dials, but the X9350 lacks the dedicated speed dial buttons of the OfficeJet Pro L7580.

Epson Stylus Photo RX650

Epson's RX650 is aimed at the home user who wants to combine photo printing with scanning and copying. It's a six-colour printer, with separate cyan, photo cyan, magenta, photo magenta, yellow and black cartridges. Photo output from the RX650 was very good, but considering its six-ink configuration and Epson's



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Lexmark X9350 (\$499)

pedigree with photo printers, we were a trifle disappointed. Prints came out just a fraction too dark in some instances, and it lost a little bit of detail in some prints that theoretically lesser printers, like its cheaper sibling the CX5900, handled better. Also, its photo-quality colour copies came out the darkest by default, with off-white backgrounds becoming grey.

Colour matching to the original print, however, was very good. It also produced one of the best results when printing a difficult image directly from a memory card, adjusting the image to strike the right balance between red and skin tones.

As a plain paper printer it did a commendable job. While it put just a fraction too much ink on areas of solid black and in greyscale images, and its blacks were slightly grey in appearance, the RX650 produced good colour plain paper prints and sharp text in colour or black and white. Print speeds were not stellar, but we found that when doing photo prints you can greatly increase print speeds by choosing the Normal quality setting instead of Best, with negligible decrease in quality.

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Epson Stylus Photo RX650 (\$499)

When printing direct from a memory card you can use the colour LCD to choose the images you want to print, and to apply cropping (you can also use the proof sheet scanning combo to select images on a card for printing). You can also shift images on a memory card directly to an attached USB storage device, or scan images directly to an inserted memory card.

In addition to the PictBridge and USB ports, there is also an IrDA port so you

can print images from a compatible mobile phone.

There are some built-in features for photo enthusiasts, such as the ability to restore the colour in faded photographs placed on the scanner, plus there is a film holder for scanning slides or negative film. You can also choose to crop or enlarge a photo when copying it on the scanner, without using the PC. The RX650 also includes an attachment for printing labels on CD/DVDs.

All told, there's a wealth of features for the enthusiast that never resort to using a PC, although Epson provides its usual extensive software suite.

HP OfficeJet Pro L7580

HP's OfficeJet Pro L7580 is, as you'd expect, clearly pitched as home office/small office all-in-one, combining printing, scanning and copying with a built-in fax. What is surprising is that unlike OfficeJet models we've seen in the past, the L7580 makes few concessions to its designated role as an office workhorse when it comes to photo printing.

It has four ink cartridges – black, cyan, magenta and yellow – which plug into a bay at the front of the unit. For such a robust design, the cartridge slots are a bit of a let-down; despite guides that should let you slot the cartridges in without doubt, my first attempt resulted in the black car-



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HP OfficeJet Pro L7580 (\$599)



tridge being incorrectly inserted.

The Pro L7580 turned out beautiful photo prints that were a match for those from the best printers here, with a good mix of contrast and detail retention. Not only that, it did it so at very respectable print speeds. Its colour matching when doing photo-quality colour copies was not as good as the Epson or Canon printers, with its reds veering too far towards orange. Likewise, its built-in controls didn't handle our tricky photo printed directly from a memory card, with the reds in skin tones being very oversaturated. Overall, though, there's no reason to hesitate if you want to use the L7580 as your photo printer.

In plain paper tasks it was a star, with crisp output and no over-inking on plain paper, and super-fast print speeds. It was the fastest at plain paper tasks of the higher-end printers; the only task on plain paper where it was beaten by any printer was printing a A4 colour PDF brochure, where the MP600 just edged it out.

In addition to a USB port, the L7580 comes with an Ethernet port so you can integrate it into your network. A duplex attachment for double-sided printing plugs in at the rear, while there's an auto-sheet feeder on top of the scanner/fax.

If you want to print from a memory card you don't get a colour LCD, but unlike the Photosmart C3180 you can use the monochrome LCD to choose images by number, set options and print. Alternatively, you can use the proof sheet scanning procedure to print from a card.

The L7580's fax handles both black and white and colour faxing, and you can use it on a dedicated line (including PBX or ISDN), or on a line shared with a phone. You can set up speed dials (for individual numbers or groups) and there are five dedicated speed dial buttons on the control panel.

When using the device as a copier there are buttons for quickly choosing copy quality, reduce/enlarge and colour mode. If you want an all-in-one that will be your office jack-of-all trades, but still hold its own after 5pm when you want to print your holiday snaps, this is the beast for you.

Canon MP960

The top of the line all-in-one from Canon pulls out all the stops for a photo fan. It comes with seven ink tanks: black, photo black, cyan, photo cyan, magenta, photo magenta and yellow. The result is generally excellent photo prints, although some prints were not as vibrant as we would have liked. The photo-quality colour copy was excellent, both in terms of colour matching, quality and exposure. The print of a difficult image from a memory card was very good in terms of colour balance, but a tad too dark.

The MP960's plain paper prints and copies were also very good, with deep, rich blacks that showed just a fraction of over-inking. As you'd expect, given the performance of the MP600, the MP960 was also a speed demon, being the fastest high-end printer at photo printing and no slouch at plain paper tasks – although the OfficeJet Pro L7580 had it beat here.

The controls and interface of the MP960 are similar to the MP600, although it

boasts a larger, 3.5-inch colour LCD. It has the same combination of scroll wheel and four-way directional buttons for selecting options on screen, and the same excellent image cropping feature when printing from a card. The scroll wheel is used to easily resize the cropping frame, which comes complete with guidelines and the ability to be rotated.

Other similarities with its cheaper sibling include the CD/DVD surface printing attachment, lower paper cassette tray, and software suite. Unlike the MP600, the MP960 comes complete with duplex printing. Plus, there's a film and slide holder for scanning negative film and 35mm slides. You get an IrDA port for printing from mobile phones and there's an optional Bluetooth attachment available for wireless printing.

If you want an all-in-one where photo printing is going to be a mainstay, but which can also handle plain paper tasks well, the MP960 is our pick.

Bruce Buckman



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Canon MP960 (\$699)

All-in-ones, side by side

Model	Price	Colours/ cartridges	Connectivity	Card reader ¹	Photo print quality	Plain paper print quality	Other features
Budget							
HP Photosmart C3180 HP, 09-918 9555 www.hp.co.nz	\$149	4 or 6 (Black and tricolour or black and photo)	USB, PictBridge	SD, MMC, MS, MS Duo, MS Pro, xD, CF	Very good	Excellent	None
Lexmark X3550 Lexmark, 09-359 7474 www.lexmark.co.nz	\$149	4 or 6 (Black and tricolour or black and photo)	USB, PictBridge	SD, SDHC, Micro/MiniSD, MMC, MS, MS Duo, MS Pro, xD, CF	Very good	Very good	Optional wireless print server
Epson Stylus CX5900 Epson, 09-366 6855w www.epson.co.nz	\$249	4 (Cyan, magenta, yellow, black)	USB, PictBridge	SD, SDHC, Micro/MiniSD, MMC, MS, MS Duo, MS Pro, xD, CF	Excellent	Very good	Colour LCD
Canon MP600 Canon, 09-489 0300 www.canon.co.nz	\$399	4 (Black, photo black, cyan, magenta, yellow)	USB, PictBridge, IrDA	SD, MiniSD, MMC, SM, MS, MS Duo, MS Pro, xD, CF	Excellent	Very good	2.5-inch colour LCD; CD/DVD surface printing; duplex; optional Bluetooth adapter
High-end							
Lexmark X9350 Lexmark, 09-359 7474 www.lexmark.co.nz	\$449	4 or 6 (Black and tricolour or black and photo)	USB, Ethernet, wireless, 2 phone ports (line/ext)	SD, MMC, MS, xD, CF	Good	Very good	Fax; auto sheet feeder; colour LCD; duplex
Epson Stylus Photo RX650 Epson, 09-366 6855 www.epson.co.nz	\$499	6 (Cyan, photo cyan, magenta, photo magenta, black, yellow)	USB, IrDA, PictBridge	SD, MiniSD, MMC, MS, MS Duo, MS Pro, xD, CF	Excellent	Very good	Film and slide scanning; colour LCD; CD/DVD surface printing
HP OfficeJet Pro L7580 HP, 09-918 9555 www.hp.co.nz	\$599	4 (Cyan, magenta, yellow, black)	USB, Ethernet, 2 phone ports (line/ext)	SD, MMC, MS, MS Duo, MS Pro, xD, CF	Excellent	Excellent	Fax; auto sheet feeder; duplex
Canon MP960 Canon, 09-489 0300 www.canon.co.nz	\$699	7 (Black, photo black, cyan, photo cyan, magenta, photo magenta, yellow)	USB, IrDA, PictBridge	SD, MiniSD, MMC, SM, MS, MS Duo, MS Pro, xD, CF	Excellent	Very good	Film and slide scanning; big 3.5- inch LCD; CD/DVD surface printing; duplex; optional Bluetooth adapter

CHART NOTES: ¹ Some cards require a user supplied adapter.