THE LABS
All-in-ones

All-in-ones

We put 11 all-in-one devices to the test and find out whether integration really works

I n the past, all-in-one devices have been scorned because of poor quality and a general feeling of compromise over buying a separate printer, scanner and fax machine. But there are many compelling reasons to consider one now.

More than anything, all-in-ones (also called multifunction devices) offer convenience. A high-quality printer and scanner may be a solution for some, but they preclude standalone copying. Apart from the time saved by being able to simply press the copy button on the fascia of an all-in-one, you won't have to worry about colour matching, as these devices are already calibrated for accuracy.

Plus, separate devices wouldn't be able to copy multipage documents – five of the units on test have automatic document feeders, capable of handling at least 30 sheets. They also feature integrated fax capabilities – adding a fourth function – which is useful in a small office environment. And, if there are several users in your small workgroup, you'll appreciate that four of the devices here offer the option of networking, allowing you to easily share their capabilities.

If you're still not convinced, all-in-ones require less power (and plug sockets) while using up less of your precious desk space than a separate printer, scanner and fax machine would. You don't have to sacrifice on quality either. Most of the 11 products on test use the same print and scan engines as the latest single-function products.

However, it's still true to say that there are some all-in-ones that don't cut it where quality and speed are concerned, so read on to find out which to avoid and which to consider for your desk.
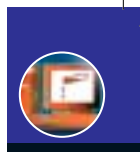
ON THE CD
This month's cover disc includes samples of the scans and our copier crop tests

CONTRIBUTORS
Jim Martin, Nick Ross

How we test

## How we put the all-in-ones through their paces

All-in-ones require a considerable amount of testing, as they can print, scan, copy and, sometimes, fax. We use an amalgamation of our usual inkjet and scanner tests, as well as introducing new copying tests for automatic document feeders plus flatbed copy tests.

PRINT TESTS

We measure print speed using a 25-page mono text document. This is printed at normal quality – we use the default driver settings as far as possible. We use an official 5 per cent coverage A4 document, developed by IDC Consulting, for testing draft speed – again, 25 copies are printed. Both are Word documents.

A four-page colour DTP document is printed from Adobe Acrobat on coated paper to assess both speed and quality. A technical colour performance test is printed on coated paper to check for smooth transitions, fades and raw CMYK accuracy. This isn't timed.

We print our usual A4 photo montage on manufacturers' recommended paper at the best possible quality settings. Where no paper is specified, we use Kodak Glossy Photo Paper. This test is timed and judged for quality. The last print test involves printing a
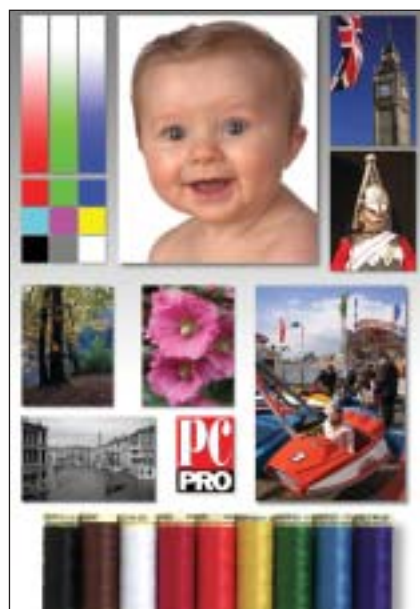
We print the photomontage on manufacturers' recommended paper at the highest quality. See a sample of each printer's results by the review.

colourful, complex CorelDRAW image on plain paper. This month, almost all of the all-in-ones produced an acceptable result.

For the quality scores, each printout is judged independently by two members of the *PC Pro* team and timings are taken from the moment the print button is clicked to when the last page drops onto the output tray. For comprehensive details of the printing tests, see issue 100, p85.

As usual, we test ink yields against manufacturers' claimed figures with our rundown tests. We use the IDC 5 per cent document for black ink and a colour A4 document with 5 per cent coverage of each cyan, magenta and yellow. We install a fresh set of cartridges and run the printers continuously until prints start showing banding from a lack of ink. The results can be found on the feature table on p138, together with manufacturers' quoted yields.

SCAN TESTS

We rate each scanner's performance based on both speed and quality, just as for the print engine. We first time how long a preview takes and then scan a page of A4 text at 150ppi. Next is a 6 x 4in photo of three people, also scanned at 150ppi. Here we check the scan against the original for faithful reproduction of skin tones.

The next scan is of an A4 glossy print showing a pair of mounted candles, patterned cloth and holly against a green material background. We scan at 300ppi, which gives sufficient detail without creating unmanageable file sizes. We pay close attention to small details such as the texture of the cloth and petals of the yellow flower, as well as examining colour and white balance accuracy.

The most demanding test is the scan of a 10 x 8in glossy print (*see above*) at each scanner's optical resolution. As three of the units on test have 1,200ppi optical resolutions, we standardise on 600ppi as the maximum scanning resolution so there's a fair 'apples-to-apples' speed and quality comparison. Again, we check for colour accuracy and how well each scanner is able to represent reflection of light on shiny surfaces.

The glossy jewellery print is scanned at 600ppi. See the results on the cover disc.

COPY TESTS

Most copies are of mono text, so we make five copies of our 5 per cent coverage document (printed on a laser printer) both in normal and draft mode. This gives a good idea of how fast each unit is for the bulk of its copying duties and whether quality is badly affected by switching to draft mode. Both tests are carried out using plain paper.

As we've noticed some all-in-ones omitting headers and footers on copies in the past, we include a clipping test with markings from 100 per cent down to 75 per cent to see which devices can copy an entire A4 sheet.
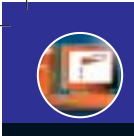
Where an automatic document feeder is present, we copy a five-page colour DTP document – which also includes the A4 clipping test sheet – onto plain paper. We use the normal colour copy mode.

Finally, we put on the plate three copies of the 6 x 4in photo used in the scanning test and make a single A4 copy on glossy photo paper at best quality. All the results of our speed and quality testing can be found on p136-137.

RATING FEATURES AND VALUE

Although the features score doesn't contribute to the speed or quality ratings, it is factored into the value score you see at the bottom of each review. It takes into account extras such as media readers and automatic duplex units as well as the capabilities of the drivers, acoustics and design features like input and output trays.

The value score also incorporates the running costs of the all-in-ones – based on our rundown results and the lowest price we could find for replacement cartridges – and the price of the unit itself.

THE LABS
All-in-ones

Speed results

● PRINT SPEED

Device	Score
Canon MPC600F	SPEED 111
Canon MPC200	107
Epson CX3200	105
HP 7130	105
HP psc1205	BEST VALUE 105
Brother MFC-890	102
HP 6110	LABS WINNER 102
Epson CX5200	96
Lexmark X5150	96
Lexmark X125	90
Lexmark X75	80

0 20 40 60 80 100 120
Relative scores (average = 100)

BETTER

● COPY SPEED

Device	Score
Canon MPC200	116
Canon MPC600F	SPEED 116
Brother MFC-890	106
Epson CX5200	99
Lexmark X5150	98
Epson CX3200	97
HP 6110	LABS WINNER 97
HP 7130	96
Lexmark X125	96
Lexmark X75	91
HP psc1205	BEST VALUE 87

0 20 40 60 80 100 120
Relative scores (average = 100)

BETTER

● SCAN SPEED

Device	Score
Lexmark X5150	118
Canon MPC600F	SPEED 112
Epson CX3200	111
HP psc1205	BEST VALUE 106
Lexmark X75	105
Canon MPC200	102
HP 6110	LABS WINNER 96
Brother MFC-890	89
HP 7130	89
Lexmark X125	88
Epson CX5200	85

0 20 40 60 80 100 120
Relative scores (average = 100)

BETTER

SPEED RESULTS TABLES

Below are the exact times taken in a variety of our tests (*see p135*), from pressing the appropriate button to the end result appearing on page or screen. All times are given in seconds.

PRINT SPEED	Paper type	Brother MFC-890	Canon MPC200	Canon MPC600F	Epson CX3200	Epson CX5200	HP 6110	HP 7130	HP psc1205	Lexmark X75	Lexmark X125	Lexmark X5150
Photomontage	Glossy photo	331	178	104	393	401	280	294	323	680	608	530
25-page mono text	Plain	308	307	240	230	240	297	381	281	384	292	225
25-page 5 per cent draft text	Plain	156	180	366	207	121	165	132	251	262	186	187
CorelDRAW image	Plain	142	125	82	149	295	188	93	126	547	429	220
4-page DTP document	Coated	1,041	929	332	594	1,330	960	955	480	2,205	788	992

COPY SPEED	Paper type	Brother MFC-890	Canon MPC200	Canon MPC600F	Epson CX3200	Epson CX5200	HP 6110	HP 7130	HP psc1205	Lexmark X75	Lexmark X125	Lexmark X5150
A4 people photo	Glossy photo	239	76	98	407	475	437	615	362	868	N/A	298
5 mono copies normal	Plain	64	49	47	85	65	86	90	210	109	86	128
5 mono copies draft	Plain	38	41	37	56	38	49	35	N/A	67	65	38
5-page colour ADF test	Plain	106	N/A	265	N/A	N/A	308	160	N/A	N/A	752	N/A

SCAN SPEED		Brother MFC-890	Canon MPC200	Canon MPC600F	Epson CX3200	Epson CX5200	HP 6110	HP 7130	HP psc1205	Lexmark X75	Lexmark X125	Lexmark X5150
6 x 4in skin tones print		15	11	8	9	25	13	14	11	13	13	8
10 x 8in jewellery print		213	147	151	192	231	124	267	103	127	217	126
12 x 10in candles print		62	48	40	60	67	25	56	40	40	66	34
A4 page of text		13	11	13	6	22	23	17	16	12	18	13
Preview		21	15	9	6	10	18	16	12	13	18	8

The truth about running costs

With two of the products on test costing under £80, you won't have to break the bank to invest in an all-in-one. However, as we've discovered in the past with one particular inkjet printer, two new print cartridges could cost more than what you paid for the device in the first place.

We've scoured the Internet and printed the lowest prices we can find for cartridges – you'll find them on the Feature table on p138. Costs vary from less than £5 to almost £25, but aren't directly comparable, as some only include the ink while others are supplied with a brand-new print head as well.

Several devices take individual colour ink tanks, while others integrate all three into one tank or cartridge. A further complication comes from the fact that claimed cartridge yields vary from 130 pages for the Canon MPC200 Photo to 950 pages from the Brother MFC-890.
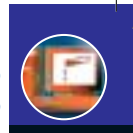
To make comparison simple, we've taken a fresh set of cartridges for every printer and printed pages using either mono text or cyan, magenta and yellow blocks to find out exactly how long they last. Each mono page consists of exactly 5 per cent coverage, while our colour page has 15 per cent coverage, 5 per cent of each colour.
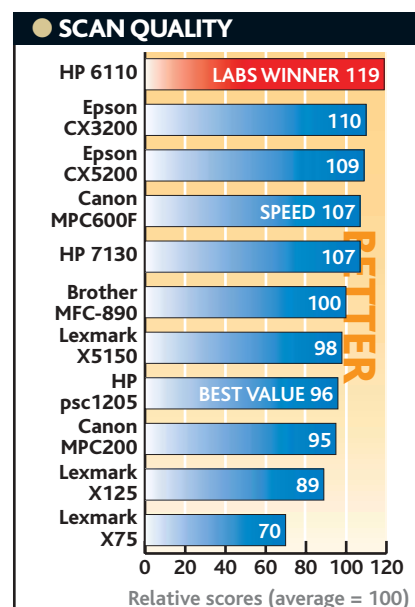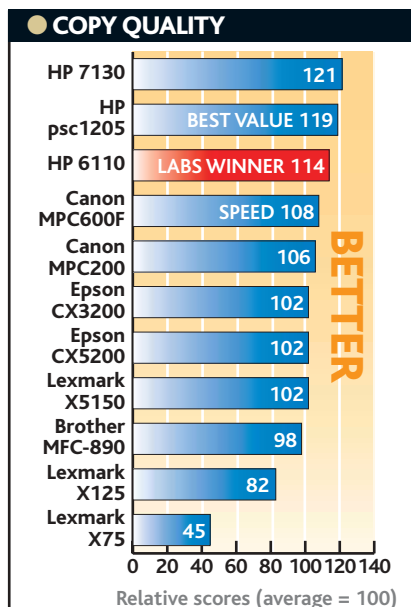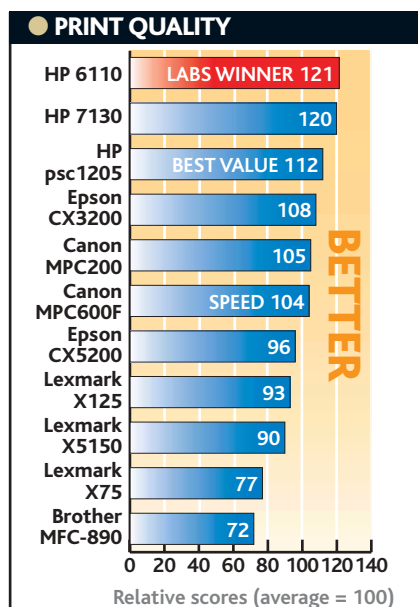
We count the number of pages

printed until noticeable banding starts. For the colour tests, we note when the first colour starts to show banding. On the whole, colours didn't run out at exactly the same time, but within a few pages of each other. Again, the results can be found on the Feature table.

To obtain final costs per page (excluding paper) in mono and colour, we divide the street price of the cartridge by the number of pages printed. Where print heads are separate and replaceable, we add the cost per page of the print head to the ink cost.

If you're intending to print many photos, you'll have to bear in mind the cost of glossy photo paper – this is

Quality results

● PRINT QUALITY

HP 6110	LABS WINNER 121
HP 7130	120
HP psc1205	BEST VALUE 112
Epson CX3200	108
Canon MPC200	105
Canon MPC600F	SPEED 104
Epson CX5200	96
Lexmark X125	93
Lexmark X5150	90
Lexmark X75	77
Brother MFC-890	72

0 20 40 60 80 100 120 140
Relative scores (average = 100)

● COPY QUALITY

HP 7130	121
HP psc1205	BEST VALUE 119
HP 6110	LABS WINNER 114
Canon MPC600F	SPEED 108
Canon MPC200	106
Epson CX3200	102
Epson CX5200	102
Lexmark X5150	102
Brother MFC-890	98
Lexmark X125	82
Lexmark X75	45

0 20 40 60 80 100 120 140
Relative scores (average = 100)

● SCAN QUALITY

HP 6110	LABS WINNER 119
Epson CX3200	110
Epson CX5200	109
Canon MPC600F	SPEED 107
HP 7130	107
Brother MFC-890	100
Lexmark X5150	98
HP psc1205	BEST VALUE 96
Canon MPC200	95
Lexmark X125	89
Lexmark X75	70

0 20 40 60 80 100 120
Relative scores (average = 100)

QUALITY RESULTS TABLES

Below is a summary of the quality results from our tests – see How we test (*p135*) for more details. All results are scores out of ten.
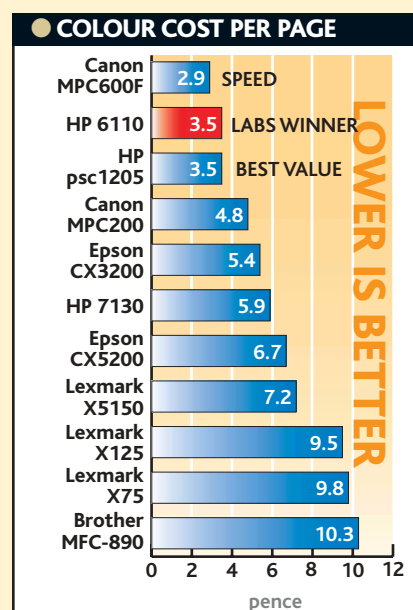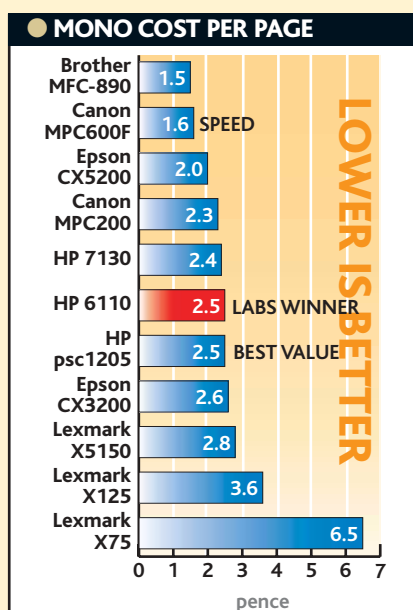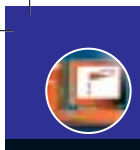
PRINT QUALITY	Paper type	Brother MFC-890	Canon MPC200	Canon MPC600F	Epson CX3200	Epson CX5200	HP 6110	HP 7130	HP psc1205	Lexmark X75	Lexmark X125	Lexmark X5150
Photomontage	Glossy photo	3	7	7	8	5	10	10	9	1	6	5
25-page mono text	Plain	4	9	9	7	7	10	10	10	8	9	7
CorelDRAW image	Plain	4	7	7	8.5	6	8.5	9	8.5	5	5	6
Colour performance	Coated	2	7	6	7	5	9	8	6	1	4	3
4-page DTP document	Coated	2	7	7	8	8	10	10	8	3	5	6

COPY QUALITY	Paper type	Brother MFC-890	Canon MPC200	Canon MPC600F	Epson CX3200	Epson CX5200	HP 6110	HP 7130	HP psc1205	Lexmark X75	Lexmark X125	Lexmark X5150
A4 people photo	Glossy photo	7	4	3	6	2	9	9	5	1	N/A	8
5 mono copies normal	Plain	3	9	9	6	9	9	9	9	5	9	6
5 mono copies draft	Plain	5	6	6	4	6	6	7	9	3	6	6
Clipping sheet	Plain	8	7	7	9	8	6	6	6	2	7	5
5-page colour ADF test	Plain	7	N/A	8	N/A	N/A	5	6	N/A	N/A	3	N/A

SCAN QUALITY		Brother MFC-890	Canon MPC200	Canon MPC600F	Epson CX3200	Epson CX5200	HP 6110	HP 7130	HP psc1205	Lexmark X75	Lexmark X125	Lexmark X5150
6 x 4in skin tones print		7.5	5.5	7.5	8.5	8	9.5	8	7	2	5	6
10 x 8in jewellery print		6.5	6.5	9	8.5	8.5	10	7.5	6.5	3	5.5	8
12 x 10in candles print		6	6	6	7	7	8	7	5	3	5	5

essential for the best results. For more details, see Paper: does it matter? on p135.

As the graphs on the right show, the Brother MFC-890 is cheapest for mono printing at just 1.5p per page. Canon's MPC600F is most economical for colour pages at 2.9p. However, the Brother is the most expensive for colour at 10.3p per page, while the MPC600F almost matches the Brother for mono at 1.6p per page. The HP 6110 and psc1205 are joint-second cheapest for colour at 3.5p per page and both have a mono cost per page of 2.5p. This makes them second cheapest to run behind the MPC600F, with the bonus of a new print head with each cartridge.
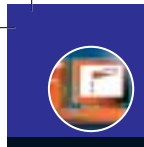
● MONO COST PER PAGE

Brother MFC-890	1.5
Canon MPC600F	1.6 SPEED
Epson CX5200	2.0
Canon MPC200	2.3
HP 7130	2.4
HP 6110	2.5 LABS WINNER
HP psc1205	2.5 BEST VALUE
Epson CX3200	2.6
Lexmark X5150	2.8
Lexmark X125	3.6
Lexmark X75	6.5

0 1 2 3 4 5 6 7
pence

● COLOUR COST PER PAGE

Canon MPC600F	2.9 SPEED
HP 6110	3.5 LABS WINNER
HP psc1205	3.5 BEST VALUE
Canon MPC200	4.8
Epson CX3200	5.4
HP 7130	5.9
Epson CX5200	6.7
Lexmark X5150	7.2
Lexmark X125	9.5
Lexmark X75	9.8
Brother MFC-890	10.3

0 2 4 6 8 10 12
pence

THE LABS
All-in-ones

● FEATURE TABLE

	Brother MFC-890	Canon SmartBase MPC200 Photo	Canon SmartBase MPC600F	Epson Stylus CX3200	Epson Stylus CX5200
Overall score	95	100	106	99	101
Price[1] (inc VAT)	£259 (£304)	£139 (£163)	£219 (£257)	£112 (£132)	£148 (£174)
Manufacturer's website	www.brother.co.uk	www.canon.co.uk	www.canon.co.uk	www.epson.co.uk	www.epson.co.uk
Supplier	dabs.com (web only)	dabs.com (web only)	dabs.com (web only)	Simply 0870 727 2100	Simply 0870 727 2100
Supplier's website	www.dabs.com/2BJJWS	www.dabs.com/2BBKWS	www.dabs.com/1Y27WS	www.simply.co.uk (code: 56732)	www.simply.co.uk (code: 56458)
Basic warranty	1yr on-site	1yr on-site	1yr on-site	1yr on-site swap-out	1yr on-site swap-out
PHYSICAL CHARACTERISTICS					
Dimensions (W x D x H mm)	492 x 466 x 378	396 x 548 x 276	440 x 584 x 326	475 x 389 x 235	453 x 434 x 254
Maximum power consumption (W)	50	38	40	22	23
Peak acoustic noise level, dB(A)	45	50	50	52	46
Installed memory	8MB	4.7MB	4.5MB	Buffer memory 64KB, additional memory 5.7MB	12.3MB
LCD panel	2-line display (backlit)	2-line display	2-line display	2-line display	2-line display
CONNECTIVITY AND DRIVERS					
USB	USB 1.1	USB 1.1	USB 1.1	USB 1.1	USB 1.1
Other	SmartMedia, CompactFlash Type II[2], Memory Stick readers, parallel, 10/100BaseTX (option), 2 x RJ-11	PC Card slot (CompactFlash Type I adaptor bundled)	Parallel, 2 x RJ-11	✗	802.11b (option)
Cables supplied	Phone (with splitter), power	Power	Phone, power	USB, power	USB, phone, power
Windows drivers included	Windows 98, ME, NT 4, 2000, XP	Windows 98, ME, 2000, XP	Windows 95, 98, ME, NT 4, 2000, XP	Windows 98, ME, 2000, XP	Windows 98, ME, 2000, XP
Mac OS drivers included	Mac OS 8.5.1+	✗	✗	Mac OS 8.6+	Mac OS 8.6+
PRINTER SPECIFICATIONS					
Print-head technology	Piezo-electric	Thermal	Thermal	Piezo-electric	Piezo-electric
Smallest drop size (picolitres)	5	5	5	4	3
Draft mode resolution (dpi)	450 x 150	Not stated	Not stated	360 x 360	360 x 360
Normal mode resolution (dpi)	600 x 600	Not stated	Not stated	1,440 x 720	1,440 x 720
Maximum resolution (dpi)	2,400 x 1,200	2,400 x 1,200	2,400 x 1,200	5,760 x 720	5,760 x 720
Consumables pricing (all prices exc vat)					
Print head	N/A, not replaceable	N/A, not replaceable	N/A, not replaceable	N/A, not replaceable	N/A, not replaceable
Mono cartridge	£14	£4.50	£9	£22	£23
Combination colour cartridge	N/A	£9	N/A	£19	N/A
Individual colour cartridge	£8	N/A	£6	N/A	£11
Photo cartridge	N/A	N/A	N/A	N/A	N/A
Price of ink per page in mono (pence)[3]	1.5	2.3	1.6	2.6	2
Price of ink per page in colour (pence)[3]	10.3	4.8	2.9	5.4	6.7
Consumables life					
Lifetime of print head (pages)	Life of printer	Life of printer	Life of printer	Life of printer	Life of printer
Number of print head colours	4	4	4	4	4
Type of ink	Dye-based	Dye-based	Dye-based with pigment-based black	Dye-based	Pigment-based
Mono cartridge stated life (pages) at 5 per cent coverage	950	130	310	600	860
Mono cartridge tested life (pages) at 5 per cent coverage	924	198	548	843	1,105
Colour cartridge stated life (pages) at 5 per cent per colour	450	170	390	300	420
Colour cartridge tested life (pages) at 5 per cent per colour	233	187	625	349	494
Fade resistance (years)[4]	Not stated	25	25	Not stated	70
Pages per minute					
Manufacturer's quoted speeds: mono (ppm)	Draft, 20; normal, 3.5; best,1.2	Draft, 14	Draft, 17	Economy, 14	Draft, 22; normal, 7.5
Manufacturer's quoted speeds: colour (ppm)	Draft, 16; normal, 2.5; best, 0.9	Draft, 10	Draft, 12	Economy, 14; photo, 0.4	Draft, 11; normal, 4; photo, 0.4
Paper handling					
Automatic document feeder	✔, 30 sheets	✗	✔, 30 sheets	✗	✗
Paper tray capacity (pages)	100	100	100	100	100
Output tray capacity (pages)	50	100	100	100	100
Minimum/maximum paper weight (g/m²)	64/180	64/270	64/245	64/255	64/255
Driver options					
Automatic head alignment	✗	✗	✗	In printer driver	In printer driver
Automatic media selection	✗	✗	✗	✗	✗
Borderless A4/6 x 4in printing	✗/✗	✔/✔	✗/✗	✔/✔	✗/✗
Double-sided printing (manual/automatic duplex)	✗/✗	✔/✗	✗/✗	✗/✗	✔/✗
Ink-level gauge	✔	✗	✗	✔	✔
Others	Manual colour adjustment	Quiet mode, stamp/background, image effects	Stamp/background, image effects	Colour management, watermark	Colour management, gamma, watermark
SCANNER SPECIFICATION					
Optical resolution (ppi)	600 x 2,400	600 x 1,200	600 x 1,200	600 x 1,200	1,200 x 2,400
Maximum interpolated resolution (ppi)	9,600	9,600	9,600	9,600	9,600
Bit-depths (greyscale/colour)	8-bit/36-bit	8-bit/36-bit	8-bit/24-bit	8-bit/24-bit	8-bit/24-bit
Light source	Cold cathode lamp	LED	LED	Cold cathode lamp	Cold cathode lamp
Sensor type	CCD	CIS	CIS	CCD	CCD
Maximum scanning area (W x D mm)	219 x 300	219 x 300	219 x 308	223 x 305	223 x 305
Driver options					
Gamma correction	✗	✔	✔	✗	✔
Descreen	✗	✔	✔	✗	✔
Brightness and contrast	✔	✔	✔	✔	✔
Colour adjustment	✗	✔, manual	✔, manual	✗	✔, manual and automatic
Software supplied					
Image editing	ScanSoft PaperPort 8 SE	Photo Optimiser, Vivid Photo, Image Optimiser	✗	ArcSoft PhotoImpression 4	ArcSoft PhotoImpression 4
OCR	ScanSoft PaperPort 8 SE	ScanSoft OmniPage SE	✗	NewSoft Presto! OCR	NewSoft Presto! OCR
Other	Brother software, remote setup	Easy Photo Print, Print Advisor	Canon MultiPASS	Epson Photo Print, Epson PhotoQuicker, Epson Smart Panel	Epson Photo Print, Epson PhotoQuicker, Epson Smart Panel
COPIER SPECIFICATION					
Standalone copy	✔	✔	✔	✔	✔
Fastest claimed copy speed (mono/colour, ppm)	15/12	14/10	17/10	10/9	15/5
Reduction/enlargement (%)	25/400	25/400	25/400	25/400	25/400
Resolution (mono/colour, dpi)	1,200 x 1,200/1,200 x 1,200	600 x 600/1,200 x 1,200	600 x 600/1,200 x 1,200	1,440 x 720/1,440 x 720	1,440 x 720/1,440 x 720
FAX SPECIFICATION					
Speed of fax (if included in unit)	33.6Kb/sec	✗	33.6Kb/sec	✗	✗
Page memory	Up to 400	✗	Up to 270	✗	✗
Speed dials	100	✗	Up to 100	✗	✗

1 Prices were correct at time of going to press. 2 No Microdrive support. 3 Using tested page life and street price of cartridges. 4 Maximum lightfastness possible using recommended paper and ink.
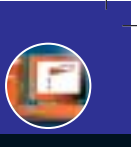
	HP Officejet 6110	HP Officejet 7130	HP psc1205	Lexmark X75	Lexmark X125	Lexmark X5150
	114	113	105	81	94	95
	£229 (£269)	£299 (£351)	£79 (£93)	£62 (£73)	£125 (£147)	£115 (£135)
	www.hp.co.uk	www.hp.co.uk	www.hp.co.uk	www.lexmark.co.uk	www.lexmark.co.uk	www.lexmark.co.uk
	Insight 0870 700 7350	dabs.com (web only)	Insight 0870 700 7350	dabs.com (web only)	dabs.com (web only)	dabs.com (web only)
	www.insight.com/uk (code: HPOJ6110)	www.dabs.com/2DB7WS	www.insight.com/uk (code: HPPSC1205)	www.dabs.com/24LGWS	www.dabs.com/24LJWS	www.dabs.com/29SXWS
	1yr RTB	1yr RTB	1yr RTB	1yr on-site swap-out	1yr on-site swap-out	1yr on-site swap-out
	496 x 394 x 300	555 x 415 x 338	426 x 259 x 170	460 x 560 x 296	442 x 545 x 293	460 x 360 x 280
	60	100	55	14	18	35
	50	50	50	44	45	44
	16MB	16MB	8MB	256KB	2MB DRAM, 1MB Flash	8MB
	2-line display	2-line display	One-digit display	X	2-line display	2-line display
	USB 1.1	USB 1.1	USB 1.1	USB 1.1	USB 1.1	USB 2
	2 x RJ-11, Jetdirect (option)	SmartMedia, CompactFlash Type II, Memory Stick, SD card readers, 3 x RJ-11, Jetdirect (option)	X	X	X	X
	Phone, power	Phone, power	Power	Power	Phone, power	Power
	Windows 98, ME, 2000, XP	Windows 98, ME, 2000, XP	Windows 98, ME, 2000, XP	Windows 98, ME, 2000, XP	Windows 98, ME, 2000, XP	Windows 98, ME, 2000, XP
	Mac OS 9+	Mac OS 9+	Mac OS 9+	Mac OS 8.6+	X	Mac OS 9+
	Thermal	Thermal	Thermal	Thermal	Thermal	Thermal
	4	4	4	CMY = 7, K = 24	CMY = 7, K = 24	CMY = 3, K = 24
	600 x 600	600 x 600	600 x 600	300 x 600	300 x 600	300 x 600
	1,200 x 1,200	1,200 x 1,200	1,200 x 1,200	1,200 x 1,200	1,200 x 1,200	600 x 600
	4,800 x 1,200	4,800 x 1,200	4,800 x 1,200	2,400 x 2,400	2,400 x 2,400	4,800 x 1,200
	N/A, integrated into cartridge	£22 each	N/A, integrated into cartridge	N/A, integrated into cartridge	N/A, integrated into cartridge	N/A, integrated into cartridge
	£14	£16 (ink tank only)	£14	£18	£19	£19
	£18	£20 (ink tank only)	£18	£20	£22	£22
	N/A	N/A	N/A	N/A	N/A	N/A
	£18, optional for six-colour printing	N/A	N/A	N/A	£27	N/A
	2.5	2.4	2.5	6.5	3.6	2.8
	3.5	5.9	3.5	9.8	9.5	7.2
	Same as ink life below	16,000 black, 30,000 colour	Same as ink life below	Same as ink life below	Same as ink life below	Same as ink life below
	4	4	4	4	4	4
	Dye-based with pigment-based black	Dye-based with pigment-based black	Dye-based with pigment-based black	Dye-based with pigment-based black	Dye-based with pigment-based black	Dye-based with pigment-based black
	450	830	450	410	600	600
	567	704	567	396	521	676
	400	470	400	275	275	450
	509	354	509	204	232	304
	70	Not stated	70	Not stated	Not stated	Not stated
	Draft: 19, normal: 7.5, best: 2	Draft, 23; normal, 8; best, 0.6	Draft, 12; normal, 7.8; best, 1.4	Draft, 11	Draft, 16	Draft, 19
	Draft: 15, normal: 5, best: 0.5	Draft, 18; normal, 8; best, 0.5	Draft, 10; normal, 3.6; best, 1.1	Draft, 6	Draft, 8	Draft, 14
	✔, 35 sheets	✔, 50 sheets	X	X	✔, 50 sheets	X
	100	150 (400 optional)	100	100	100	100
	50	50	50	50	50	50
	60/236	60/220	70/200	max 270	max 270	max 270
	✔	✔	✔	X	X	✔
	✔	✔	X	X	X	✔
	X/✔	X/X	X/X	X/X	X/X	X/X
	✔/X	X/✔	X/X	X/X	✔/X	✔/X
	✔	✔	✔	✔	✔	✔
	Image enhancements	Ink volume, dry time	X	X	X	X
	1,200 x 2,400	1,200 x 4,800	600 x 1,200	600 x 1,200	600 x 1,200 (sheet-fed only)	600 x 2,400
	19,200	9,600	19,200	9,600	9,600	9,600
	8-bit/48-bit	8-bit/48-bit	8-bit/36-bit	8-bit/24-bit	8-bit/24-bit	8-bit/24-bit
	Cold cathode lamp	Cold cathode lamp	LED	LED	LED	Cold cathode lamp
	CCD	CCD	CIS	CIS	CIS	CCD
	220 x 305	219 x 360	218 x 300	220 x 299	220 x 297	220 x 297
	X	X	X	✔	✔	✔
	✔	X	✔	✔	✔	✔
	✔	✔	✔	X	✔	✔
	✔, manual	X	✔, manual	X	✔, manual	✔, manual
	HP Image Editor	HP Creative Photo Projects	HP Image Editor	Lexmark Photo Editor	Lexmark Photo Editor	Lexmark Photo Editor
	HP OCR	Readiris Pro	Readiris Pro	ABBYY FineReader 5 Sprint	ABBYY FineReader 5 Sprint	ABBYY FineReader 5 Sprint
	HP Director, HP Photo Gallery, HP Instant Share, HP Share to Web, HP Photo Prints, HP Album Printing, HP Quick 10 x 15cm prints, HP Memories Disc Creator	HP Director, HP Scan to Web	HP Director, HP Photo Gallery, HP Instant Share, HP Share to Web, HP Photo Prints, HP Album Printing, HP Quick 10 x 15cm prints, HP Memories Disc Creator	X	X	X
	✔	✔	✔, limited	X	✔, limited	✔
	19/14	23/18	10/8	9/4	12/5	16/11
	25/400	25/400	50/200	25/400	25/400	25/400
	Best: 1,200 x 1,200/1,200 x 1,200 (on photo paper)	Best: 2,400 x 1,200/2,400 x 1,200 (on photo paper)	Best: 600 x 1,200/1,200 x 1,200 (on photo paper)	2,400 x 2,400/2,400 x 2,400	2,400 x 2,400/2,400 x 2,400	4,800 x 1,200/4,800 x 1,200
	33.6Kb/sec	33.6Kb/sec	X	X	33.6Kb/sec	X
	Up to 100	Up to 125	X	X	Up to 80	X
	Up to 100	Up to 130	X	X	Up to 70	X

THE LABS
All-in-ones

Brother MFC-890

PRICE £259 (£304 inc VAT)   **SUPPLIER** www.dabs.com/2BJJWS

VERDICT Well featured and cheap to run in mono, but poor print quality and average speed make the price too high.

The MFC-890 is certainly a well-featured machine. On top of printing, scanning, copying and faxing, it includes an automatic document feeder and direct photo-printing capability thanks to three media readers on the front panel. It's only a shame that neither the Microdrive or SD/MMC cards are supported.

We weren't particularly enamoured with the control panel, though. Although it has more buttons than others and the only backlit LCD on test, menus have to be negotiated to set common functions such as print quality. The software package is similarly uninspiring, as it doesn't properly integrate all the functions like the Epson and HP bundles.

There's no arguing with this all-in-one's connectivity, though, with USB and parallel ports both built in, and there's optional networking too. Paper handling is also good. The input and output trays easily handled the claimed 100 sheets, while a manual input tray allows a completely straight paper path.

Hinging the scanner upwards reveals four individual ink tanks. This is a useful feature but we found they only printed 233 pages instead of the quoted 450. This gives a colour page cost of 10.3p – more costly than even the Lexmark X75 and X125. In mono, though, the Brother is the cheapest here at 1.5p per page.

With a 2,400 x 1,200dpi print specification, we had high expectations when it came to the MFC-890's print quality – sadly, it didn't meet them. The test photo on Kodak's glossy paper emerged with rather dull colours, but it was the horizontal and vertical banding that really spoiled it. Colour images on plain paper were better, but again suffered from banding. On coated paper, text was fine, although images were grainy. Sadly, black text on plain paper was the worst we saw – banding again the problem (see the sample above).
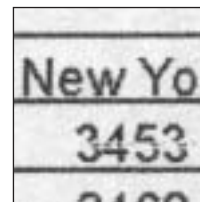
The MFC-890 isn't particularly fast at printing either, providing average speeds. It took over five minutes to print the 25-page mono test in normal mode, and a similar amount of time for the A4 photo. The speed highlight came in the copying tests, where the MFC-890 was third fastest overall. Copy quality, however, was third poorest. At least light shading was picked up – something even the HP 6110 failed to do. Scan quality and speed were both mid-table. The jewellery scan at optical resolution showed good colour accuracy, though, with plenty of detail.

However, there are plenty of better choices that cost less, leaving the MFC-890 a fair way behind the award winners.

PC PRO RATINGS
OVERALL
95
FEATURES	QUALITY
100	87
SPEED	VALUE
99	89
100 IS THE AVERAGE

Canon SmartBase MPC200 Photo

PRICE £139 (£163 inc VAT)   **SUPPLIER** www.dabs.com/2BBKWS

VERDICT Decent speed and quality, plus a CompactFlash reader, add to this all-in-one's appeal, but it has a couple of minor problems.

As the Photo part of its name suggests, this all-in-one is targeted at those with digital cameras. Thanks to an integrated PC Card slot and the bundled Type I CompactFlash adaptor, you can print directly from a camera's card. It proved easy to use once we deciphered the fascia's button labels, and it's possible to print an index sheet, borderless 6 x 4in photos or A4 photos independently of a PC. We also like the well-designed foldaway paper trays, which keep the footprint small when not in use.
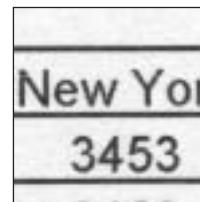
When it came to our tests, the MPC200 Photo produced near-perfect text at impressive speeds. It also led the field in photo-printing speed, but quality wasn't up to the standard set by the HPs. The photomontage remained sharp, but colours were rather dull. We were also disappointed to see that the quality dropped when printing 6 x 4in borderless photos directly from a CompactFlash card, with grain a problem.

The print of our DTP newsletter on coated paper was generally beyond reproach, with its only real failing coming in the paragraphs featuring white text on a black background. The MPC200 also lost no sleep over the colour performance test, where it came third thanks to smooth transitions and no banding.

When copying, the MPC200 accelerated to the head of the pack by producing crisp black and white text faster than almost every other machine. Draft mode squirted noticeably less ink on the page, but the document was still perfectly readable. Its time of just 76 seconds to copy the A4 photo of people was by far the fastest on test although quality suffered, with details lost in darker areas.

We saw a similar problem in our scanning tests – the images were too dark and colour undersaturated in places, again leading to lost detail. Otherwise, it was a reasonable performer and gained a mid-table placing for speed.

There wasn't much to separate the software bundles, but Canon supplies the well-featured ScanSoft OmniPage SE – a useful OCR package. Another notable feature is the quiet mode in the driver, which sacrificed a little speed for a decrease in the already unobtrusive acoustic output.

Overall, the MPC200 Photo offers better quality and speed than the slightly cheaper Lexmark X5150 and is better featured than the budget HP psc1205. If your digital camera uses CompactFlash cards and scanning isn't a priority, it's an attractive choice.

PC PRO RATINGS
OVERALL
100
FEATURES	QUALITY
93	102
SPEED	VALUE
104	102
100 IS THE AVERAGE

Canon SmartBase MPC600F

PRICE £219 (£257 inc VAT) **SUPPLIER** www.dabs.com/1Y27WS
VERDICT As well as quick performance and good quality throughout, the MPC600F boasts minuscule running costs.

The SmartBase MPC600F may be one of the biggest, least stylish all-in-ones, but it's capable of delivering prints and copies quicker than every other device on test – and all with respectable quality.
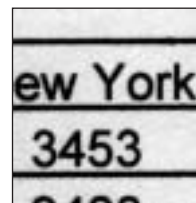
For example, the A4 photo was printed in under two minutes, yet its results were surprisingly good. Although slightly grainy compared with the best, colours looked realistic and there was no banding. The 25 pages of text in normal mode appeared on the output tray in exactly four minutes for a speed of 6.3ppm. And the tough four-page report was a breeze for the Canon, taking less than six minutes while the next fastest (HP's psc1205) took eight.

The MPC600F is also ideal if you want to copy documents quickly. In normal mode, it took just 47 seconds to make five copies and was ten seconds quicker in draft mode. Plus, the 30-sheet ADF (automatic document feeder) means you can make multiple copies of long documents with no interaction. We appreciated the well-designed interface, which has large buttons for copy, fax and scan. With further buttons for paper type, quality and scale, copying couldn't be easier.

If you want an all-in-one for a small office, the MPC600F's quiet operation will appeal. Also, the covered input tray means paper won't get dusty, and the output tray is hidden beneath the device, keeping the footprint down. USB and parallel interfaces are found on the rear panel, but there's no network option.

There's no significant software to speak of either, although the scanner driver offers a comprehensive range of options. Duplex and borderless functions are missing on the print side, but probably won't be necessary for most tasks this machine will undertake.

Despite using an LED/CIS scanner, the MPC600F managed fourth place for scan quality. One notable result is the jewellery scan at 600ppi. Only the HP 6110 produced a better result here. What's more, the MPC600F came in second for scan speed.

Add to this an integrated 33.6Kb/sec fully featured fax and a competitive price of £219, and the Canon is hard to fault. If you're still not convinced, we tested ink yields and found the MPC600F has the lowest running costs on test at 1.6p and 2.9p for mono and colour pages respectively. It makes the Canon a great alternative to the HP 6110 if speed is more important than quality.

PRO RATINGS
OVERALL
106
FEATURES **107** | QUALITY **103**
SPEED **106** | VALUE **115**
100 IS THE AVERAGE
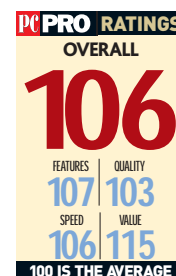
Epson Stylus CX3200

PRICE £112 (£132 inc VAT) **SUPPLIER** Simply 0870 727 2100 (code: 56732)
VERDICT Although it's an average all-in-one overall, the CX3200 is equipped with a high-quality scanner. The biggest turn-off is its noisy operation.

At first glance, the two-tone grey and beige CX3200 seemed like a sturdy all-in-one. Then we turned it on. Unfortunately, it's by far the noisiest unit on test – almost a minute of high-pitched whirring after pushing the power button wasn't a good start. Things weren't helped by the curved input tray, which was prone to misfeeds when more than 80 sheets were inserted. On the plus side, the fascia is smart, intuitive and well featured, and it incorporates a two-line LCD.

Unlike the more expensive CX5200, the CX3200 is based on the Stylus C62 engine so uses just two separate ink tanks: tricolour and black. In our print tests, images were more impressive than text, but in spite of the slightly spidery characters quality was certainly acceptable and was produced quickly. Draft mode turned text very light, indicating more of an ink-saving mode than a speed-gain mode, although it was still readable.
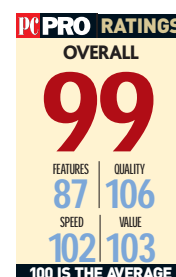
The CX3200 moved up the quality charts – and was far quieter – when dealing with images. Our A4 test photo was only bettered by the three HPs, with washed-out reds being its sole downfall. A bonus for those intending to print lots of photos is the CX3200's ability to produce borderless A4 and 6 x 4in prints – something none of the HPs can claim. Its DTP document rendition was bettered only by the HP 6110 and 7130, and was printed significantly faster. Blacks were deep, with the only dampener being some slightly washed-out colours in the photos.
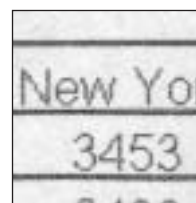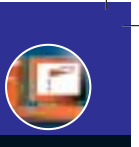
Scanning saw the CX3200 surge towards the head of the pack, with overall quality coming second only to the HP 6110. It consistently captured detail accurately, with only slightly undersaturated colours – a problem easily fixed in editing software – and the 600ppi optical resolution is enough for blowing up small areas of images. In terms of speed, the CX3200 was third fastest overall.

Copying isn't a strength, though. While our photo of people was sharp and well detailed, there was a noticeable green cast, which spoiled our overall opinion. Mono text copies were a touch light, but passable.

Overall, the CX3200 is a better choice than its more expensive Lexmark rivals, if not able to keep up with the HP psc1205 for value. The noise factor is another reason to avoid the Epson, although if you place a high weighting on scan quality it's a good budget choice.

PRO RATINGS
OVERALL
99
FEATURES **87** | QUALITY **106**
SPEED **102** | VALUE **103**
100 IS THE AVERAGE

Paper: does it matter?

We find out whether manufacturers' photo paper is a rip-off or essential for the best print quality

It's no secret that printer manufacturers make most of their profit from consumables. We've already covered ink-related running costs (*see p136*) and have said before that speciality photo papers are mandatory for the best print quality. But they're expensive. With cheaper alternatives available, we find out if you can save money without sacrificing quality.

The table below shows the cost per A4 sheet of Canon, Epson and HP photo papers along with the equivalents from Kodak, Ilford and PC World. The prices are the cheapest we found after scouring the Internet. PC Line (from PC World) came out best at 32p per sheet, while Ilford paper works out as costly as HP's new Premium Plus paper at 48p a sheet.

Due to time limitations, we only tested Ilford, Kodak and PC Line papers in the two award-winning HP all-in-ones using our A4 photomontage. We used precisely the same settings as for the main tests – the single difference being the paper. Three members of the Labs team judged the printouts, both from normal viewing distances and close up.

Side-by-side, the results for the 6110 were obvious: from normal distances, both Kodak and Ilford were a match for HP's Premium Plus. Colours varied only by a tiny amount and sharpness appeared the same. However, the PC Line paper made images too dark and colours were oversaturated. Looking closer revealed a lack of detail on the cotton reels, where individual strands were no longer distinct and dark areas of photos had a hazy appearance. The baby photo was also grainy.

Almost the same comments are true of the psc1205, although the PC Line paper caused paper jams. When it didn't detect a jam, paper was fed too far or not enough, causing parts of the image to be missed off. Again, Kodak and Ilford produced acceptable results, with only a slight lack of detail noticeable close up.

Ultimately, the PC Line paper should be avoided with these HP printers. And while Kodak and Ilford's papers are viable alternatives, neither offers a big saving. Yet another reason to stick with HP's Premium Plus is that HP claims the 70 years' lightfastness is only attainable by using this paper with genuine HP ink.

JIM MARTIN

	Price	Sheets in pack	Cost per sheet	Supplier
PC Line Premier Photo Paper	£6.49	20	32p	www.pcworld.co.uk
Kodak Ultima Picture Paper	£6.49	15	43p	www.jessops.com
HP Premium Plus Glossy Photo Paper	£9.50	20	48p	www.mx2.com
Ilford Galerie Smooth Gloss Paper	£11.95	25	48p	www.jessops.com
Canon Photo Paper Pro Glossy	£10.99	20	55p	www.jessops.com
Epson Premium Glossy Photo Paper	£10.99	20	55p	www.jessops.com

Epson Stylus CX5200

PRICE £148 (£174 inc VAT) **SUPPLIER** Simply 0870 727 2100 (code: 56458)
VERDICT The stout CX5200 offers inferior print quality and slower speed than other devices in its price range, but it could tempt people with some of its features.

Epson's CX5200 instantly gives the impression of being a solid performer, thanks to rugged build quality. Its paper trays are well designed and well positioned, while its fascia is sensibly labelled and easy to use.

The CX5200 also stands out from the crowd owing to features like the 1,200ppi scanner and DuraBrite colourfast technology, as used in the Stylus C82, which boasts 70 years' lightfastness. There's also an optional wireless module, allowing this all-in-one to be easily integrated into an existing 802.11b network.

Its print quality placed it in the middle of the table, with the important mono text tests being its highlight. In normal mode, characters were sharp and black, although draft mode – which uses less ink 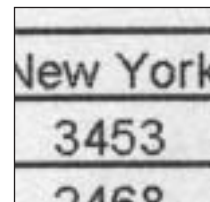– produced slightly blocky but nonetheless readable text. Speed at both tasks was impressive, with 6.3ppm in normal mode and 12.4ppm in draft.

However, when copying our photographs, its speed was severely lacking, taking almost eight minutes for an A4 copy. What's more, colour accuracy wasn't particularly good, graininess was apparent and there were harsh transitions between dark and light areas.

These problems were echoed in our A4 photomontage print: blues became washed-out purples, there was an annoying magenta cast, and slight graininess again spoiled the image's impact. The CX5200's DTP document, however, was only beaten by the more expensive HPs, with vibrant blacks and crisp text visible throughout. The only downside in this test was again the grainy images.
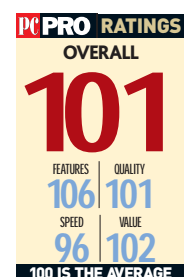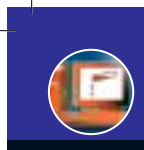
With Epson's established pedigree in the scanning world – its Perfection 2450 Photo (*see issue 95, p88*) only recently left the A List – we expected good quality from the scanner. We weren't disappointed – only the HP 6110 and CX3200 beat the CX5200 here. Sharpness and colour accuracy were excellent, with its biggest problem being a lack of speed. It took 25 seconds to scan the 6 x 4in photo at 150ppi – the slowest on test. A 67-second wait for the 12 x 10in candles image was also the slowest we saw.

Although this is a strong all-in-one, it's hard to recommend. We know from past reviews that Epson makes better printers and scanners than this combined effort offers. And, at £148, we expected more from the CX5200, especially as the CX3200 is faster and offers better quality. Unfortunately for Epson, so do other all-in-ones on test this month.

PC PRO RATINGS

OVERALL

101

FEATURES	QUALITY
106	**101**
SPEED	VALUE
96	**102**

100 IS THE AVERAGE

THE LABS
All-in-ones

HP Officejet 6110

PC PRO A LIST

PRICE £229 (£269 inc VAT)   **SUPPLIER** Insight 0870 700 7350 (code: HPOJ6110)
VERDICT Offering unrivalled print and scan quality at this price, the 6110 is the ideal all-in-one device for a small office or SME.

The cliché 'jack-of-all-trades, master of none' usually lies under the surface of every all-in-one review, although we manage to avoid writing it most of the time. But the Officejet 6110 has forced us to think again. While this device is capable of printing, scanning, copying and faxing, it certainly isn't true to say it's a master of none. In fact, the 6110 strikes pretty much the perfect balance between features, quality, speed and value.

Styling and build quality are exactly what we'd expect from HP. The 6110's tri-tone plastic casing looks more expensive and sturdier than others on test, and the design is superb. A neat hinging mechanism allows easy access for swapping ink cartridges, and the input and output paper trays retain HP's normal horizontal design, keeping paper flat and protected from dust. There's also a manual slot for 6 x 4in photo paper. On top sits a flatbed scanner with a 1,200 x 2,400ppi optical resolution, while a 35-sheet automatic document feeder allows long documents to be easily copied or faxed.

The buttons on the control panel are neatly segregated into fax, copy and scan areas, making the 6110 easier to use than most devices. Plus, the sheer number of buttons means you don't have to scroll menus for commonly used options. Overall print quality is superb. As standard, black and tricolour cartridges are shipped but six-colour is possible if you install the optional photo cartridge. Then again, even in four-colour mode, the 6110 beat everything on test.
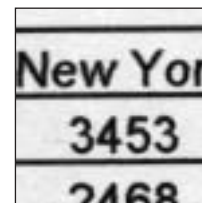
Copy quality was bettered only by the other two HP machines, while scan quality saw the 6110 climb back to the top of the pile. Unlike the 7130's scanner, the 6110's had no colour accuracy issues and scans were very detailed.

Canon's MPC600F was considerably faster in most tests, but the 6110's higher quality prints and scans easily make up for this. And, if you'll be printing mono documents, the 6110's 9ppm speed in our draft test is more than acceptable.

When it comes to ease of use, the 6110 is a breeze. The bundled software integrates all the functions well and makes every task as simple as a few mouse clicks. Plus, you can hook up a Jetdirect external USB Ethernet print server for network connectivity for a small workgroup.

At £229, the 6110 costs just £10 more than the Canon MPC600F and is well worth it. Unless speed is a priority, the 6110 is the all-in-one to choose.

PC PRO RATINGS
OVERALL
114
FEATURES	QUALITY
120	117
SPEED	VALUE
99	116
100 IS THE AVERAGE

HP Officejet 7130

PRICE £299 (£351 inc VAT)   **SUPPLIER** www.dabs.com/2DB7WS
VERDICT Similar in speed and quality to the 6110, the 7130's higher price is only worth paying if you need the duplexer and media readers.

The Officejet 7130 is one of the newest in HP's all-in-one line-up. It's the only device here to have a built-in automatic duplexer and also features media readers for Memory Stick, CompactFlash, SD and SmartMedia cards.

At a glance, the 7130 looks similar to the 6110, but note the larger footprint. A similar, well-designed control panel lets you scan, fax and copy with ease, and only Lexmark's X125 can rival its 50-sheet ADF. The print engine uses four print heads and two ink tanks: tricolour and black. It all points to more heavy-duty usage than the 6110; indeed, the claimed mono speed of up to 23ppm beats quite a few laser printers.
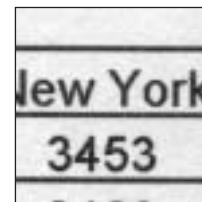
Unfortunately, we couldn't match this speed in our testing – the 7130 printed our 25-page document at draft quality in 132 seconds, equating to 11.4ppm. However, only the Epson CX5200 bettered this with 12.4ppm, and both are still respectable speeds. Printing the A4 photomontage at highest quality took just less than five minutes – only the two Canons were faster.

The 7130 excelled in our print-quality tests, matching or beating the 6110 except for colour performance, where slight banding prevented full marks. In the four-page report, text rivalled laser quality and colour images were vibrant and sharp.

Overall copy quality was the best on test, thanks to crisp text and fairly accurate colours, although it failed to pick up the faint grey shading on our test document.

The 7130's only real disappointment was when scanning. It had a tendency to give reds a pink tinge, and this isn't correctable in the editing software HP provides. Other than this, scans were perfectly acceptable.

Mono running costs aren't extortionate at 2.4p per page, but the 7130 uses an under-printing technique where colour is printed below black to make text look darker and sharper. In our tests, almost 30 per cent of the colour ink was used while running the black ink tank down, and so the colour cartridge only printed 354 of the claimed 470 pages, leading to a high page cost of 5.9p.

The optional 400-sheet paper tray is another potentially useful feature, but the extra cost of the duplexer and media readers pushes the price higher than other all-in-ones. As the 6110 offers identical speed and quality, only those who need the extra features should consider the 7130.

PC PRO RATINGS
OVERALL
113
FEATURES	QUALITY
128	114
SPEED	VALUE
98	107
100 IS THE AVERAGE
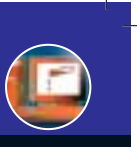
HP psc1205

PRICE £79 (£93 inc VAT)   **SUPPLIER** Insight 0870 700 7350 (code: HPPSC1205)

VERDICT Compact, fast and an excellent performer to boot, the psc1205 is ideal for those on a tight budget. A stunning achievement.
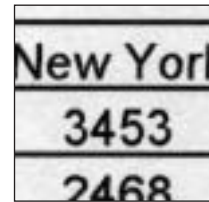
In an all-in-one world of beige and grey, the diminutive and stylish psc1205 provides a breath of fresh air. With its turquoise lid, a colourful, minimalist fascia and a transparent front panel, this iMac-ish *objet d'art* would add a touch of style to any home office. But that's not all this baby HP has to offer – the psc1205 outperformed many of its far more expensive rivals.

Using the same cartridges as the 6110, one of the psc1205's strengths is producing superb colour photos. Only its more costly HP brethren delivered better quality, and even then not by much. Text was also of excellent quality, with sharp edges and rich blacks. What's more, only the two Canons were faster throughout the print tests.

Where the psc1205 fell down was in the colour performance test, with banding spoiling what was otherwise a colour-accurate and quick print. This trait worsened when making copies, primarily since the lack of fascia controls meant the highest quality setting was unavailable. In fact, although the psc1205 can perform standalone copies, the absence of a LCD limits what you can do. While copied text was good quality, no button for draft quality was frustrating.

The psc1205 had mixed results in our scan tests. It was surprisingly fast, but – partially because it uses a CIS sensor rather than CCD – quality wasn't as good as others. Generally, colour reproduction was accurate, but again banding was noticeable, though this lessened when using the 600ppi optical resolution. Realistically, though, most people will be happy with its output.

Given the low price, it's little surprise the psc1205 has relatively few features. For one, there's no output tray – prints drop almost directly on top of the input tray. Also, the monthly duty cycle of only 1,000 pages makes it strictly a home or small office all-in-one.

But this is exactly where the psc1205 excels. Its only competitor at this price is Lexmark's X75, and the psc1205 not only puts this in the shade, it also produces better print quality than both of the similarly fax-less and far more expensive Epsons. If you factor in the low running costs of 2.5p and 3.5p for mono and colour pages respectively, the psc1205 represents exceptional value – a worthy award winner.

PC PRO RATINGS

OVERALL

105

FEATURES	QUALITY
88	107
SPEED	VALUE
101	117

100 IS THE AVERAGE

Lexmark X75

PRICE £62 (£73 inc VAT)   **SUPPLIER** www.dabs.com/24LGWS

VERDICT Awful print quality, sluggish speed and no standalone capabilities make the X75 one to avoid. Spend an extra £17 on the HP psc1205 instead.
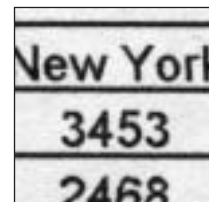
Lexmark's X75 is the firm's budget all-in-one. For only £62, you can have a printer, scanner and copier, but be prepared to make sacrifices. First, the print engine is showing its age with drop sizes of 7pl for colour and 24pl for black – compare this with the 4pl of HP's psc1205. Plus, with just 256KB of memory, copies can only be made with the use of a PC – no standalone functions are possible. There's no LCD either, so this device is best controlled from a PC anyway.

At least the scanner is a flatbed unit, although it uses a poor-quality CIS sensor, which led to less than brilliant scan quality. Thus began its long string of wooden spoons in our tests. Scans were consistently too dark and significant detail was missing. Strange patches of glare were also evident, completely ruining scans. Sadly, this makes the fact that scanning speed was fifth fastest overall irrelevant.

In our print tests, the X75 was the slowest we saw by quite a margin. It could only manage 3.9ppm for standard text and just 5.7ppm in draft. Our A4 photo took more than 11 minutes to print, yet produced quality that would have been barely acceptable five years ago. The main problems were undersaturated colours and graininess that was obvious from normal viewing distances.

This trend of slow, poor quality prints continued, with the lowest point coming in our four-page DTP newsletter. Here, the X75 spent almost 40 minutes printing on coated paper only to produce the second-worst quality we saw.

Unfortunately, new levels of graininess and tardiness were achieved when it came to copying photographs. The A4 test took over 14 minutes to emerge, but was even worse quality than the A4 photomontage. Text became more spidery, lines in tables exhibited visible distortion and speed once again was noticeable only by its absence. Worse still, more than 20 per cent was chopped off the bottom of the page in our clipping test.

On its own, we'd say the X75 proves the old adage 'you get what you pay for' is true, but HP's psc1205 blows this out of the water – it costs just £17 more yet offers standalone capabilities and superb print quality at a decent pace. The choice between the two is simple.

PC PRO RATINGS

OVERALL

81

FEATURES	QUALITY
68	74
SPEED	VALUE
97	75

100 IS THE AVERAGE
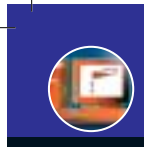
THE LABS
All-in-ones

Lexmark X125

PRICE £125 (£147 inc VAT)   **SUPPLIER** www.dabs.com/24LJWS

VERDICT High running costs, poor standalone copying ability and lacklustre speed all conspire against the X125, but its extra fax abilities lend it appeal.

While all the other all-in-ones in this group test are first and foremost printers, scanners and copiers, the X125's design owes much more to a fax machine. Rather than integrate a flatbed scanner, the X125 uses a sheet-fed CIS version. This means it can copy documents up to 50 pages long without human intervention – a unique feature at this price.

The X125 also has an LCD, which makes standalone use easier. For example, the HP psc1205 has just a seven-segment LED for the number of copies. But, while multiple-page documents may be copied in colour or mono, the X125's stingy memory quota means that more than a single copy requires the use of a PC. Of course, the integrated colour fax makes up for this, but the overall quality and speed of the print engine and scanner fall well below the standard set by the psc1205.

Our A4 photomontage took over ten minutes to print at best quality – the psc1205 was almost twice as fast. Sadly for Lexmark, the extra wait wasn't worth it. Colours weren't too bad, but slight banding and noticeable grain detracted from the overall appearance. When printing and scanning, the X125 was second slowest overall, only moving to third from bottom in the copy tests.

One highlight, though, was that our 25-page text test was churned out at 5.1ppm, while switching to draft mode increased this to 8ppm. Plus, text quality was up to the usual excellent Lexmark standard.
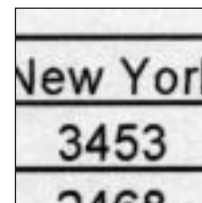
Quality when copying and scanning was second worst overall, partially due to the absence of a flatbed scanner. On their own, scans looked okay, but compared with others detail capture was inferior and banding was evident. Oddly for a sheetfed scanner, the driver is one of the most fully featured we saw and includes full manual colour control.

It's a shame that no USB cable is bundled, but the essential phone cable means you can start faxing straight away. Arguably, the X125's biggest problem is its running cost. Mono pages are relatively expensive at 3.6p, but a whopping 9.5p for colour is reason enough to avoid the Lexmark if you're intending to print lots of colour documents or photos. Nevertheless, if you're after a fax machine that can print and copy, there's little else to choose from at this price.

PC PRO RATINGS
OVERALL
94
FEATURES	QUALITY
89	93
SPEED	VALUE
102	86
100 IS THE AVERAGE
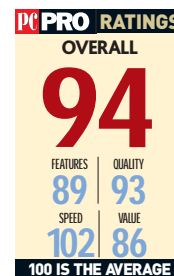
Lexmark X5150

PRICE £115 (£135 inc VAT)   **SUPPLIER** www.dabs.com/29SXWS

VERDICT Lexmark's flagship all-in-one offers only moderate all-round performance and lacks features compared with others at a similar price.

Of the three Lexmark offerings in this month's Labs, the X5150 represents the firm's flagship model. However, at £115, it's competing with other manufacturers' mid-range models.

On the desk, the X5150's silver and grey plastic casing is stylish but doesn't feel as solid as the HP 6110. The fascia, however, is clearly labelled and the paper trays are well placed and unobtrusive. Lexmark supplies a reasonable software bundle, including a separate OCR application, and offers integration with a PC's modem for fax capabilities. Sadly, as with the X125 and X75, no USB cable is included.

The X5150 uses Lexmark's latest generation of print cartridges, which have integrated print heads. The headline specification of 4,800 x 1,200dpi matches HP's, but while colour drops are variable in size from 3pl to 10pl, black drops are fixed at a large 24pl. However, we were pleased to see an automatic paper sensor in place, as found in the HP 6110 and 7130. This can automatically align the heads and adjust print quality according to the type of paper being used.

In the print tests, the X5150 produced a decent photomontage with grain only noticeable close up, but a greenish tinge left flesh tones looking unnatural. Text was of good quality, although characters were slightly spidery in draft mode. The worst performance came in the colour fades test, where blacks turned grey and fades were grainy and stepped. The DTP test was passable, but blacks were again undersaturated and banding was evident. This, coupled with slightly speckled pictures, detracted from our overall opinion.
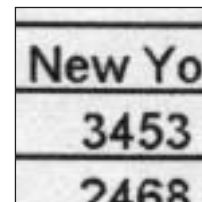
The X5150 is much more convincing as a copier. It produced one of the best photo copies, with excellent colour accuracy and impressive contrast that was inferior only to the top HPs. Mono copies were fine, with the only drawback again being undersaturated blacks in the bar chart. It was fast too, but clipping problems meant almost 10 per cent was missing from the bottom of the test page.

Scanning produced some more passable results. Our main quibble concerned the A4 candles test, where whites picked up a yellow tinge. Colours in the jewellery scan were a little dark and undersaturated, but accuracy was otherwise good. Speed in this test was among the best on show.

Unfortunately, this only adds up to a mediocre quality and speed overall for the Lexmark. The similarly priced Epson CX3200 offers better speed and quality.

PC PRO RATINGS
OVERALL
95
FEATURES	QUALITY
95	95
SPEED	VALUE
96	90
100 IS THE AVERAGE