Notes on the €uro Symbol – its generation and printing

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Acknowledgement/Disclaimer

It is not possible to put together a document of this scope, which has involved much collation and some original research, without considerable help from staff of the major software and printer companies, many of the individuals mentioned towards the end of this document, and other correspondents. Some have asked to remain anonymous, so it would seem invidious to name the others. When they read this document, they will be able to assess just how great was their individual contribution, which is *much* appreciated.

You are advised to check thoroughly for yourself the information which this document contains, and also to assess for yourself its applicability (if any) to your own PC environment.
Entropy and the passage of time will inevitably cause the accuracy and relevance of this information to be reduced as a function of continuing software and website developments.

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0. Introduction / Summary

This document shows a variety of forms of the euro symbol, and how they can be produced in Microsoft Office packages.

All Microsoft operating systems, including Windows NT 3.51 and Windows 3.x (a convenient shorthand for Windows 3.1, Windows 3.11 and Windows for Workgroups 3.11), now have support for the euro, usually via an update available from the Microsoft web site.

The discussion is restricted mainly to Microsoft products, TrueType fonts and Hewlett-Packard printers, since this is what we use and can test. Somewhat greater emphasis is placed on the newer Microsoft operating systems and Office packages.

The euro font support for the Apple Macintosh from Apple, Hewlett-Packard and Microsoft is briefly mentioned.

Several references to euro-related web sites are supplied, but please note that the addresses and content tend to change rapidly.

1. The representation of the euro symbol

The official European Commission 'logo' representation of the euro symbol is:

€   EC euro 'logo'

This symbol shape is shown in several constructions on the European Commission web site at
http://europa.eu.int/euro/html/static/download5.html
The example above is produced from the Hewlett-Packard TrueType font "Euro Sign" – just one example of the many fonts which provide this shape.

Originally the EC laid down a set of rigid rules about the sizes at which this symbol could be reproduced, requiring that it should always appear exactly as specified, including the colours (see Section 5.1 Comments on the EC euro logo shape).

This view met with strongly negative comments at the time, mainly from typographers, and these strictures now appear to have been quietly dropped.

The following four pages contain the euro symbols from fonts published by Microsoft, Hewlett-Packard and Monotype, as representative of the major font manufacturers and suppliers. TrueType fonts containing the euro symbol are available from many other font developers. See Section 4 for further euro information references.

Following generally-accepted and logical typographical principles, *Microsoft* has implemented the euro symbol so that its shape matches the style of the font in which it appears, and its width is the same as that of the numbers in that font. Microsoft have stated that eventually all their own fonts supplied with current operating systems will include the euro symbol. The fonts shown below have been obtained from several Microsoft website and other sources:

- the Windows operating systems themselves (e.g. Windows 98)
- Windows operating system service packs (e.g. Service Pack 4 for Windows NT 4.0)
- euro-currency support packages (e.g. for Windows 3.x or Windows 95 or Windows NT 3.51)
- Office 97 Service Releases (for registered users of Office)
- the package "More Euro Fonts for Microsoft Office" (for registered users of Office)
- Microsoft Typography's "TrueType core fonts for the Web"

Some fonts can be obtained from more than one of these sources. For example, both Lucidas are euro-updated by NT 4 Service Pack 4 and the NT 3.51 Euro Currency Support update; the Tahoma update is available from several service packs, and elsewhere. The euro font support provided by the Microsoft Windows 3.x Euro Currency Support package is restricted to Windows codepage 1252 and the standard Arial, Courier New and Times New Roman fonts (but see the second part of Section 3.3.1, 'Using fonts originally designed for use in Windows 95/98 and Windows NT 4', for further details).

€ Andale Mono [1] (this font was previously known as Monotype.com)

€ Arial

€ **Arial Black**

€ Arial Narrow

€ Book Antiqua

€ Bookman Old Style

€ Century Gothic

€ Comic Sans MS

€ Courier New

€ Garamond

€ Georgia

€ **Haettenschweiler**

€ **Impact**

€ Lucida Console

€ Lucida Sans Unicode

€ *Monotype Corsiva*

€ Tahoma

€ Times New Roman

€ Trebuchet MS

€ Verdana

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[1] The true name of this font is actually "Andalé Mono", pronounced "An-dah-lay", in the French manner. However, as a Web font it is known as "Andale Mono" (without the accent) because of the problems with might result from specifying an accented font name in Web pages.

Hewlett-Packard has made available a number of euro-enabled fonts for Windows 95 & 98, and Windows NT 4 from at least the following sources:

- FontSmart v2.5 and v3.0/v3.1 – free with the larger LaserJet (and a few DeskJet) printers or purchasable from HP; these provide the greatest number of fonts
- Via a website update for the standard 45 'LaserJet' Hewlett-Packard fonts – requires the user to have an HP LaserJet printer; this update contains most of the above fonts
- Six additional free fonts are available from the FontSmart website
- Only the two Euro Sign fonts and SymbolPS can produce a euro symbol (the EC logo shape) in Windows 3.x, if the Windows 3.1 Euro Currency Support has *not* been applied)

See Section 4.3 and Section 4.4 for details of how to obtain these fonts.

On one of their fonts web sites, at http://www.fonts.com/hp/euro/Eurodev5.htm, they have pages of examples of euro symbols in their fonts (a major subset of those shown below, but often including in addition the italic and bold versions).

Euro symbols in Hewlett Packard fonts …

€ **Albertus**   € **Albertus Extra Bold**

€ Albertus Medium   € Antique Olive

€ **Antique Olive Compact**   (is this a typographical joke?)

€ Bodoni   € **Bodoni Black**

€ CG Omega   € CG Times

€ Clarendon   € **Clarendon Condensed**

€ **Clarendon Extended**

€ *Coronet*

€ CourierPS   € Dark Courier

€ Euro Sign   € Euro Sign Mono

€ Garamond   (beware a partial conflict with the Microsoft Office/Monotype Garamond)

€ Gill Sans   € Gill Sans Condensed

€ **Gill Sans Extra Bold**   € Gill Sans Light

€ Goudy Old Style   € **Goudy Old Style Extrabold**

€ Graphos

Euro symbols in further Hewlett Packard fonts :

€   Helvetica   €   Helvetica Narrow

€   ITC Avant Garde Gothic

€   **ITC Avant Garde Gothic Demi**

€   **ITC Bookman Demi**   €   ITC Bookman Light

€   *ITC Zapf Chancery*   €   Letter Gothic

€   Marigold

€   Metrostyle   €   Metrostyle Extended

€   New Century Schoolbook   **€**   **Ozzie Black**

€   Palatino   €   Strider

€   SymbolPS   (€ is located at 0240)   €   Times

€   Univers   €   **Univers Condensed**

€   Univers Extended   €   Univers Light Condensed

Symbol PS and the two 'Euro Sign' fonts work in *all* Microsoft Windows operating systems. The 'Euro Sign' fonts contain *only* a space character and the euro symbol, generated by the character 'e'. Since they contain no alphabetic characters, the names of the fonts 'SymbolPS', 'Euro Sign' and 'Euro Sign Mono' have been (arbitrarily) set in the 'OCR A Extended' font.

Monotype has created euro Symbol TrueType fonts which contain only the euro symbol (located at 0164, usually the International Currency Symbol) and the space character:

€   Arial Euro   €   Courier New Euro

€   **Gill Sans Euro MT**   €   Gill Sans Euro MT Light

€   Symbol Euro   €   Times New Roman Euro

Some of these fonts match the corresponding Microsoft Typography core fonts (with the word Euro added), and these Monotype versions work in *all* Windows operating systems. Note that the *font names* are necessarily in alternative fonts. See Section 4.4 for the download address.

2. General Support Matters

Generating and printing the euro symbol can require support from several PC hardware, firmware and software components. It must be possible:
a) to use a keyboard keystroke combination to cause the euro symbol to be generated
b) to display the euro symbol on the screen (in a euro-enabled screen font) in the chosen package running on the chosen operating system
c) to print the euro symbol correctly on the selected printer

Some of the considerations of generating and printing the euro symbol are as follows:

Keyboard	The euro symbol is now becoming available on keyboards from most PC manufacturers (Compaq, Dell, Fujitsu, IBM, Microsoft and Siemens, at least), and from keyboard specialists like Cherry In euro-enabled fonts, the euro symbol can be generated by holding down the Alt key while typing 0128 on the numeric keypad (usually), or by using the keyboard combination AltGr+4 in the UK and Ireland, or AltGr+e in most other countries, or by using Insert Symbol (for those fonts generated as Symbol or Pi fonts)

Operating System	Win 3.x	adequate support now available from Microsoft
	Win NT 3.51	adequate support now available from Microsoft
	Win 95	excellent support available (see section 3.5)
	Win NT 4	excellent support available (see section 3.6)
	Win 98	excellent support available (see section 3.6)
	Win 2000	full support … when available (in second half of 1999?)

MS Office 4.2/4.3	No direct support in Word 6, Excel 5, Access 2, or PowerPoint 4; but support is provided by the operating system

MS Office 95	all components	need printer driver option change

MS Office 97	Word 97	good native support in euro-enabled fonts
	Excel 97	needs printer driver option change
	PowerPoint97	needs printer driver option change
	Access 97	needs printer driver option change
	Outlook 97/98	needs printer driver option change

TrueType Fonts	All Microsoft Typography fonts support the euro symbol; many other Microsoft fonts already include it; most others will include it eventually (see Sections 1 and 3.1.2). Other manufacturers and third parties are producing euro symbol fonts and solutions.

Printers	Most of the newer and larger HP printers include the euro symbol in their internal fonts. In the others, the euro symbol must be printed as graphics data – this is also necessary since characters (such as blank) from built-in printer fonts such as Arial and Times New Roman can otherwise be substituted for the euro symbol. In this instance, HP advises that you set the options within the printer driver to one of: "Print TrueType as Bitmaps" (preferably), "Print TrueType as Graphics", "Always use TrueType fonts", or "LaserJet III compatible", as available.

3. How to generate and print the euro symbol in Microsoft products

Throughout Section 3, it is assumed that the appropriate euro-support update has been applied to the particular version of the operating system or Office product under discussion.

3.1 General Comments and Notes

3.1.1 Regional Settings support for the euro symbol

Windows 3.x and Windows NT 3.51 allow the specification of *any character* as the currency symbol (logical examples being £, $, € or ¤), via Control Panel ⇨ International ⇨ Currency Format ⇨ Change ⇨ Symbol. Both Windows NT 3.51 and Windows 3.x (after their respective euro currency updates) now allow the euro symbol to be typed here. The selected currency symbol carries over to the Format Codes currency options in Excel 5.

Windows 95 (with final Euro Currency support package), Windows 98 (with Service Pack 1, when available) and Windows NT 4 (with Service Pack 4) provide the most complete support (via Control Panel ⇨ Regional Settings ⇨ Currency ⇨ Currency symbol). The euro is one of the currency symbols which may be selected as the system default currency, the others (in the UK) being £ and $.

3.1.2 Keyboard, Code Page and TrueType Font Support for the euro symbol

When we press a particular key on a PC keyboard, we expect to see the corresponding character on the screen in the chosen (or default) font, and to be able to print this character on the printer. The internal mechanisms of this are rather complicated, relying on such things as keyboard scan codes, character mappings, code points and national language support. (Older UK PC users will undoubtedly remember the problems they had with printing the UK £ sterling currency symbol in the early days of the IBM PC). With the availability of TrueType fonts, the connection between screen character and printer character has become more straightforward than it was in the days of DOS – now "what we see on the screen" is almost always "what we get on the printer".

Since the euro symbol did not exist when PC keyboard layouts were originally defined, a convention was necessary to generate it using a particular keystroke or combination of keystrokes, in the particular operating system running on the PC, and in a particular screen font or TrueType screen/printer font. In their newer operating systems, Microsoft has inserted the euro currency symbol in almost all Windows code pages at hex location 80, decimal 128, replacing a 'blank' or 'empty square box' character. Other font manufacturers have chosen the International Currency Symbol's position (¤ at decimal 164) for the euro symbol in their fonts. Alternative characters or positions are used in some Symbol (Pi) fonts, or other third-party fonts. The Unicode "euro sign" assignment is U+20AC, and the standard three-letter-abbreviation for the euro is EUR. The former European Currency Unit, XEU, which is defined in the Unicode Standard as the Euro Currency Sign, ₠, at U+20A0, was effectively superseded by EUR on 1st January 1999. Older operating systems will not be aware of these code page changes and may not support Unicode – in these, the only support can be via the TrueType fonts and character substitution.

In MS-DOS, Microsoft provides no keyboard, screen or font support for the euro symbol. Most non-Microsoft third party TrueType fonts use a character substitution mechanism, for which one could say :

> "in this euro-enabled TrueType font, the character which you would usually expect to appear as *x* is replaced by the euro symbol on the screen and when printed".

Microsoft Typography states (in their Euro Currency Symbol FAQ) that:
 "Microsoft will include the symbol within all the original fonts we produce. We are working to ensure that the fonts supplied with future versions of our applications software will also include the symbol. Many independent font vendors have announced that they will be including the symbol within their new fonts."

In all the Windows operating systems, Microsoft has set up keystroke shortcuts and support files (in Windows codepage 1252, at least) to cause the euro character to be generated in screen-only and in TrueType fonts. For example, we can use
 Alt+0128 on every keyboard, regardless of country setting.
[This terminology has the following meaning:
 Ensure the Num(eric) Lock light on the keyboard is lit, then, while holding down the Alt key, type 0128 on the numeric keypad at the right-hand side, then release the Alt key.]
There are also some country-specific (via Regional Settings) keyboard shortcuts as follows:
 AltGr+e Almost all European countries
 AltGr+4 UK and Ireland (Eire)
 AltGr+5 US International and Greek Latin
 AltGr+u Hungarian and Polish
 AltGr+ε Greek (epsilon)
[This terminology has the following meaning:
 Hold down the AltGr key to the right of the space bar, press the 'e' key (or '4', or '5', or 'u' or 'ε'), then release the AltGr key. An alternative to AltGr is the key combination Ctrl+Alt, or perhaps just the right-hand Alt key.
The full list can be found in a large table in the usual Microsoft Typography Euro FAQ on
 http://www.eu.microsoft.com/typography/faq/faq12.htm#kbd
Unless the font designer has chosen otherwise, or there are multiple euro symbols in the same font, it is probable that one of the following keystroke combinations will have been chosen for the euro symbol:

Euro symbol generated by:-	Manufacturer/ Font Developer	TrueType Fonts
Alt+0128 (also AltGr+'*x*')	Microsoft and Hewlett-Packard	Almost all their euro-enabled fonts in Windows NT, Windows 95/98 and Windows 3.x
Alt+0164	Monotype	Single-character euro-fonts
Alt+0240	Hewlett-Packard	SymbolPS
Lower case 'e'	Hewlett-Packard	Euro Sign & Euro Sign Mono TTFs and the *bitmapped fonts for DOS*
Ctrl-E, Ctrl-e, or one or more alphabetic or other characters	Various	Third-party developers choose the location(s) of the euro symbol(s) on an almost completely arbitrary basis

Here is a little-known quirk for you to try in euro-enabled fonts, in products like Word, Excel …
 Alt+0128 produces the character € from the Windows code page, probably 1252;
 Alt+128 produces the character Ç from the DOS code page, probably 850 or 437.

3.1.3 Euro fonts in Office

It is likely that most users may wish to use the euro symbol mainly in the Microsoft Office components Word and Excel, and occasionally, perhaps, in PowerPoint (not dealt with here).

It is presumed that the version of Office will have been chosen to match the operating system, perhaps as follows:

Windows Version	Office Version	Euro Support Availability
Windows 3.x	Office 4.2/4.3	"Windows 3.1 Euro Currency Support" – a few Microsoft euro-fonts included; others can be installed. Also third-party TrueType euro-fonts
Windows NT 3.51	Office 4.2/4.3	"Euro Currency Support for Windows NT 3.51" – a few Microsoft euro-fonts included; others can be installed
Windows 95	Office 95	"Euro Currency Support for Windows 95" (final package)
Windows NT 4	Office 97	Windows NT 4.0 Service Pack 4
Windows 98	Office 97	Windows 98 Service Pack 1 (when available)
Windows 2000 (was NT 5) - when available	Office 2000 (when available)	Complete support included, except, perhaps, a Currency Type identifier in Excel 2000?

although it is possible, for example, for the 16-bit Office 4.2/4.3 package to be installed on the (mostly) 32-bit Windows NT 4.

If you have managed to get the euro symbol to appear on the screen but cannot get it to print, or it prints an incorrect character (like □ or Ç), it is suggested that you should first check that the HP printer driver settings are set to "Print TrueType as Bitmaps", "Print Text as Graphics" or "Print TrueType as Graphics" (or the equivalent phraseology and options for non-HP printers).

3.1.4 Euro fonts in Word

Fonts which contain *just* the euro symbol (or symbols) will be adequate for use in Word.

If you are producing tables in Word containing currency amounts, you should be aware that the standard EC-defined euro symbol 'logo' is rather wider than numbers at the same point size. The effect on the vertical alignment is unlikely to be serious since the euro symbol always appears as a prefix to the numeric value, and the currency values are invariably right-aligned (decimal point-aligned). Fonts in which the shape of the euro has been modified to match the font style, usually those from major font manufacturers for the newer Microsoft operating systems, are usually unaffected, since the width of the euro symbol is almost invariably made the same as that of the numbers.

In Word, the Insert Symbol method can be also be used to generate the euro symbol, but only in those euro-enabled fonts generated as Symbol fonts.

3.1.5 Euro fonts in Excel

In Excel the fundamental rule is that a spreadsheet cell used for calculations, rather than one which contains text only, can be formatted only in a *single* font. Consequently, to produce a currency amount in the usual form, the chosen font must contain the required currency symbol, the ten numeric digits, full stop (period), minus sign (hyphen), comma, and perhaps left and right brackets, at a minimum.

For all Windows operating systems (when updated with appropriate euro-support or service packs) and Office packages, this is not a major problem, since a currency style can be set up (or is available as a default) to allow currency amounts to appear with a floating euro symbol at the front. Any of the standard Microsoft (or other) euro-enabled fonts could be used. You are referred to the Excel Help facility for details of currency styles and number format codes.

However, most of the third-party TrueType euro-fonts (those which would commonly be used in Windows 3.x and Office 4.2/4.3) contain the euro symbol *only*, occasionally in more than one variant. These fonts could only be used to produce a euro symbol, in a cell by itself, as the *heading* of a column or table, or as the cell *preceding* a cell containing a euro numeric value which is formatted in a more complete font.

A simple simulated spreadsheet example may make this slightly clearer. The euro symbol used here has been chosen arbitrarily from the Hewlett-Packard SymbolPS font, which contains no numeric characters:

Euro spreadsheet example		€
Item 1	€	3,034.18
Item 2	€	1,928.27
Discount	€	-219.41
Total owing	€	4,743.04

In this table, just to emphasise the point, all the cells preceding the numeric amounts, as well as the cell at the top of the column of numbers, have been set up to contain the euro symbol. All other cells have been formatted in the usual Arial font.
[This example is rather less valid than it used to be, since now the euro symbol can be produced in Arial, and in many other fonts, in *all* Windows operating systems.]

You should note that, even in Excel 97 from Office 97 Service Release 2, the three-letter abbreviation EUR is not available, only the now-superseded XEU (European Currency Unit). It is forecast that the EUR abbreviation will be available in Office 2000.

The provision of a *currency type* identifier, stored with the numeric amount, for all versions of Excel is eagerly awaited, to assist with multi-currency spreadsheets. This attribute is available from at least one non-Microsoft spreadsheet manufacturer.

3.2 The euro symbol in DOS

Only a truly dedicated and knowledgeable technician (your description may vary) would wish to print the euro symbol from DOS using embedded HP Printer Control Language (PCL) commands within a text file, or via a DOS word processor. This needs an appropriate euro-enabled HP soft font downloaded to an HP printer. Hewlett-Packard has recently provided a small range of portrait and landscape bitmapped fonts, in proportionally-spaced and mono-spaced forms (why both?), at 300 dpi and 600 dpi resolution, and at 8 pt, 10 pt and 12 pt point sizes, downloadable from their FontSmart web site. These cannot be reproduced in this document, although they have been tested successfully. Most new HP printers will shortly include the euro symbol in their internal fonts and symbol sets, which would simplify this task somewhat. Details of *how* this support would be provided are not yet available.

Other mechanisms for printing the euro symbol in DOS could include the composition of the euro symbol as a graphic character for the particular printer type being used – this would be both tedious and time-consuming.

"Microsoft plans no product updates for any versions of the MS-DOS operating system."

IBM includes euro support in the Year 2000 Fix Pak for PC-DOS 7.1 and also in PC-DOS 2000. They have redefined the ISO 8879:1986 character "dotless i" in code page 850 at hex D5, decimal 213, to become the euro symbol. The precise shape is unknown, but is presumed to be the EC logo shape. Keyboard support is provided in a new KEYBOARD.SYS, with the euro symbol being generated with one of the usual AltGr+e/AltGr+4/AltGr+5 keystroke sequences, depending upon country. Some information can be found in the next two references.

For PC-DOS 7.1: ftp://ftp.software.ibm.com/ps/products/dos/fixes/dos7.0/year2000/readme.txt

and search for 'euro'

For PC-DOS 2000: http://www.software.ibm.com/os/dos/dos2000/euro.html

It is not expected that there will be a large demand for the printing of the euro symbol from DOS word processing programs or DOS spreadsheet programs, although there may perhaps be more enthusiasm from users of Unix-based systems.

3.3 The euro symbol in Windows 3.x and Office 4.x

In mid-January 1999 Microsoft released their "Windows 3.1 Euro Currency Support" update which provides default currency, keyboard, code page (Windows codepage 1252 only) and limited TrueType font support for the euro. This software update provides more potential for the use of other euro fonts than is indicated in its accompanying documentation.

3.3.1 Installing euro support on your PC

Windows 3.x users have two main options for obtaining euro-support on their PCs:

either: install the Microsoft "Windows 3.1 Euro Currency Support" package, which contains the necessary euro support for the Arial, Courier New and Times New Roman euro-fonts supplied. If desired, supplement them (on an unsupported basis) with additional euro-enabled fonts from Microsoft, Hewlett-Packard, or other manufacturers and developers

or: do not install the Microsoft "Windows 3.1 Euro Currency Support" package, but instead install one or more of the third-party euro-fonts designed to work in Windows 3.x.
[My document "Euro Fonts for Windows 3.x" gives further details of how to achieve this.]

To install Microsoft's euro support, perform the following steps:

- Download the "Windows 3.1 Euro Currency Support", WIN3EURO.EXE, package in whatever language you wish (about 7.5 MB) from :
  http://www.eu.microsoft.com/windows/downloads/contents/wurecommended/s_wufeatured/win31euro/

- Create a new directory on the target Windows 3.x PC's hard disk and run the downloaded WIN3EURO.EXE file to expand the program files into it. Read the documentation files, either README.WRI or README.TXT for the restrictions on use. (Intriguingly, the section numbering in these documents is in Roman Numerals!)

- Shut down Windows, and install the Windows 3.x euro-support by running (from native DOS) the BATch file W31_EURO.BAT with the Windows directory path as the single parameter, as in   W31_EURO C:\WINDOWS   Then restart Windows.

- If you want to make the euro your default currency symbol, do this via Control Panel ⇨ International ⇨ Currency Format ⇨ Change ⇨ Symbol and insert the euro symbol in the Symbol box using AltGr+e or AltGr+4 or Alt+0128, whichever works for you.

If you wish to supplement the three Microsoft-provided euro-fonts, then obtain one or more of the chargeable or free euro-enabled fonts from the references in Sections 4.3 and 4.4 or from elsewhere and install them by the standard Windows 3.x method (Main ⇨ Control Panel ⇨ Fonts ⇨ Add, and so on).

You should determine whether the font also includes numeric characters and/or alphabetic characters and/or punctuation characters, for use in Excel. Also ensure you know how to produce the euro symbol (or symbols) in each of the fonts you wish to use. See Section 3.1.2.

Using fonts originally designed for use in Windows 95/98 or Windows NT 4

It is not officially documented that all the so-called 32-bit euro-enabled fonts from Microsoft Typography "TrueType core fonts for the web", Office 97 SR-2, and the "More Euro Enabled Fonts for Microsoft Office" fonts, together with those from Hewlett Packard (and maybe elsewhere) can be installed in Windows 3.x once the euro currency update has been applied, and used to display and print the euro symbol in Office 4.x components such as Word 6. Of course, the Windows 3.x operating systems are 16-bit only and are unaware of Unicode, but the

Microsoft and HP fonts have also defined location 128 (hex 80) in Windows code page 1252 to access the euro symbol – this enables them to produce the euro symbol in Windows 3.x.
The procedure for installing these Microsoft and Hewlett-Packard euro-fonts on Windows 3.x is straightforward, if somewhat long-winded:
- download the fonts from the appropriate website (see Section 4.4). [You will need a valid Office 9x registration number to be allowed to download the updated Office 9x fonts from the Microsoft OfficeUpdate web site – the Office 4.x registration number is not accepted.]
- install them on their target operating system such as Windows 98 or Windows NT 4
- in the Windows 98 or NT fonts directory identify those euro-fonts (which may also have come from a Service Pack or Office 9x update) which you wish to use in Windows 3.x
- copy the corresponding TTF files from the Windows 98 or NT fonts directory to a directory on your Windows 3.x PC. (Don't copy Arial, Courier or Times – you already have them!).
- from there, install them on Windows 3.x by the usual mechanism.

You will be aware that the Windows 3.x operating systems are *considerably* less tolerant of large numbers of TrueType fonts than are later versions of Windows (95/98/NT).

NOTE – using these '32-bit' fonts on Windows 3.x means that you are expecting comparatively recent software to work successfully on what is the operating system technology of 1993 (at the latest). So you cannot rule out the possibility of problems with these fonts which could cause unpredictable results in Word or Excel, etc, or your PC to hang or crash in the way to which Windows 3.x PCs are prone. You will not be able to get support from Microsoft if this should result. Stating the obvious, you should test carefully before putting this support extension into production, and take adequate file save and backup precautions.

3.3.2 The euro symbol in Word 6 (part of Office 4.x)

Change to the selected euro-enabled font, and type the keystroke(s) required to generate the euro symbol, which should appear at the appropriate place in your document on the screen.

For Symbol fonts only, an alternative to the keystroke method may be to use Insert Symbol and hunt for the euro in the resulting table of characters.

3.3.3 The euro symbol in Excel 5 (part of Office 4.x)

The options here vary somewhat, depending on:
- whether or not you have installed the Windows 3.1 Euro Currency Support package
- if so, whether or not you have made the euro your default currency symbol
- whether or not your chosen font for displaying numeric currency values is euro-enabled and contains a full range of punctuation symbols.

The most straightforward situation is to have applied the update and to be using a euro-enabled font for a currency amount denominated in euros.

However, if you haven't installed the Windows 3.1 Euro Currency Support or are not using a euro-enabled font for the currency amount cell, you may need to display the euro symbol in the cell *preceding*, or the cell *above*, that containing a currency numeric field, as described in Section 3.1.5, since such a spreadsheet cell can be formatted only in a single font.

If your euro font includes all the numeric characters and the punctuation marks mentioned in Section 3.1.4, you may be able to set up a currency style which includes all of these, and enables the euro symbol to float in front of the numbers. See the Excel Help facility for details of setting up a new style.

3.4 The euro symbol in Windows NT 3.51 and Office 4.x

In late December 1998, Microsoft provided national language, keyboard, code page and limited font support for the euro symbol in the "Euro Currency Support for Windows 3.51". This update includes the bit-mapped screen font MS Sans Serif and five Microsoft TrueType fonts: Arial, Courier New, Lucida Console, Lucida Sans Unicode, and Times New Roman. Since the update provides the required operating system support, these fonts may be supplemented by euro-enabled fonts from other sources, the Microsoft "TrueType core fonts for the Web" and those from Hewlett-Packard and Monotype, to give but a few examples. It is possible to type the euro symbol as the default currency symbol (via Control Panel ⇨ International ⇨ Currency format ⇨ Change ⇨ Symbol) so a decision must be made whether or not to choose this option, rather than any current national currency symbol.

3.4.1 Installing euro support on your PC

Install Windows NT 3.51 Service Pack 5, if this is not already present on the PC.
Download the "Euro Currency Support for Windows NT 3.51" (Intel package – probably) from the Microsoft web page starting at:
http://www.eu.microsoft.com/windows/downloads/contents/wuarchive/nt351europatch/default.asp
or the file called euro351i.exe in the directory:
ftp://ftp.microsoft.com/bussys/winnt/winnt-public/fixes/usa/NT351/hotfixes-postSP5/Euro-fix/
and install the software on your PC.

If additional euro-enabled fonts are required, download and install any other euro-enabled fonts, perhaps from http://www.eu.microsoft.com/typography/fontpack/default.htm
or from other suppliers (see Sections 4.3 and 4.4).

3.4.2 The euro symbol in Word 6 (part of Office 4.x)

Change to the selected euro-enabled font, and type the keystroke(s) required to generate the euro symbol, which should appear at the appropriate place in your document on the screen.

For Symbol fonts only, an alternative to the keystroke method may be to use Insert Symbol and hunt for the euro in the resulting table of characters.

3.4.3 The euro symbol in Excel 5 (part of Office 4.x)

The options here vary somewhat, depending on:

- whether or not you have made the euro your default currency symbol
- whether or not your chosen font for displaying numeric currency values is euro-enabled and contains a full range of punctuation symbols.

If you are not using a euro-enabled font for the currency amount cell, you may need to display the euro symbol in the cell *preceding*, or the cell *above*, that containing a currency numeric field, as described in Section 3.1.5, since such a spreadsheet cell can be formatted only in a single font.

If your euro font includes all the numeric characters and the punctuation marks mentioned in Section 3.1.4, you may be able to set up a currency style which includes all of these, and enables the euro symbol to float in front of the numbers. See the Excel Help facility for details of setting up a new style.

3.5 The euro symbol in Windows 95 and Office 95

Microsoft has made available national language, keyboard, code page and font support for the euro symbol via a new Windows 95 euro support update, which supersedes the previous limited-functionality 'Windows 95 beta 1 Euro product update'. The replacement update includes the bit-mapped screen font MS Sans Serif and many of the Microsoft TrueType fonts shown in Section 1. It is possible to set the euro symbol as the default currency symbol (via Control Panel ⇨ Regional Settings ⇨ Currency ⇨ Currency symbol) so a decision must be made whether or not to choose this option, rather than any current national currency symbol. This support is almost identical to that now available in Windows NT 4.0 (with Service Pack 4) and Windows 98 (in Service Pack 1, when available).

Microsoft states that "Office 95 applications are not capable of sending a specific character as a bitmap. Therefore, if the user does not have updated printer fonts they need to set their applications to print fonts as graphics by going into the Printer Options box. This affects the entire printed document, not just the euro character, and will adversely affect printer speed".

In print preview, depending on zoom level, Office applications may use small fonts which do not enable the euro to be viewed. This will not affect the actual printing.

You are advised not to remove the System attribute from your \WINDOWS\FONTS directory, for if you do you may find that Windows Explorer no longer offers you the opportunity to "Install new fonts".

3.5.1 Installing euro support on your PC

Download the final Windows 95 Euro Currency Support update from the Microsoft web page starting at http://www.eu.microsoft.com/windows/euro.asp and install the software on your PC.

If additional euro-enabled fonts are required, download and install any other euro-enabled fonts, perhaps from http://www.eu.microsoft.com/typography/fontpack/default.htm
or from other suppliers.

3.5.2 The euro symbol in Word 7 (part of Office 95)

Change to the selected euro-enabled font. Then to obtain the euro currency symbol, €, in a Word 95 document,
- press AltGr+4 (or Ctrl+Alt+4), in the UK & Eire,
- or AltGr+e, in most other countries,
- or use the Insert Symbol (normal text, Currency Symbols) method,
- or hold down the Alt key while typing 0128 on the numeric keypad.

Third-party fonts may use a different keystroke sequence to generate the euro symbol – see their accompanying documentation, or try the suggestions in section 3.3.1 Installing euro support on your PC, especially the Insert Symbol method.

3.5.3 The euro symbol in Excel 7 (part of Office 95)

Consider whether or not you wish to make the euro the default currency symbol, via Control Panel ⇨ Regional Settings ⇨ Currency ⇨ Currency symbol. In the UK, the drop-down box offers the choice of £, $ or € (or you *could* type a different character).

If you have made the euro the default currency, you should have no difficulty in specifying a currency amount in euros in Excel 95. If, however, you have kept the £ (or $, or your own national currency) as the default currency, and you wish to format one or more cells to contain a euro currency amount, you may need to set up a new currency style based on one of the originals, and then format the range of cells with this style. Here is one possible way to do this:

a) click on Format then on Style, and in the Style Name box type your chosen name for this style, such as euro-currency.

b) now click on Modify – this takes you to Format Cells.

c) if you wish always to use a particular euro-font for spreadsheets, click on the Font tab and choose a font which you know contains the euro symbol. Change any other characteristics of the font you wish.

d) click on the Number tab then on Category:Currency and observe the "Use £" field with a tick in the preceding box. This will be used in default currency formats.

e) click on Category:Custom and chose one of the possible 'Type' currency formats containing the £ sign so that it appears on the top line. (The four fields in order mean: format for positive numbers, format for negative numbers, format for zero, format for text – the last field may be absent. For further information, search Excel 97's Help for Number Format Codes)

f) replace the £ (or $) sign throughout this line with the euro symbol € , then click on OK

g) check that the options in 'Style Includes' are as you require – probably the only box that should be ticked is Number.

h) click on Add to save this new style, then on OK to leave the Style window.

The required cell range can now be formatted using this new currency format, using Format ⇨ Style ⇨ Style Name: euro-currency ⇨ OK

3.6 The euro symbol in Windows NT 4, Windows 98, and Office 97

The regional settings, keyboard and codepage support provided in recent updates for Windows 95, Windows 98 and Window NT 4.0 are now almost identical. There are minor differences in the euro-fonts provided, with Lucida Sans Unicode being available only in Windows NT 4 Service Pack 4. Almost all the euro-enabled Microsoft fonts are available from the Microsoft Typography "TrueType core fonts for the Web" page or the Office Update page (see Section 4.4).

It will probably be necessary to select the "Print Text as Graphics" (or "Print TrueType as Graphics") option when using a HP LaserJet printer driver for printing the euro symbol
- in Access 97 or in PowerPoint 97
- in any of the fonts which are resident on the printer, usually Arial or Times New Roman

This option increases the time somewhat for all printing – it should not be needed if you use Word 97 only, which sends the euro symbol to the printer as a graphic, or if you have changed the relevant Registry setting for Excel 97 (see at the end of Section 3.6.3 The euro symbol in Excel 97).

You may also wish to consult the TechNet article "WD97: Some printers will not print Unicode Characters", Q159418, found on
    http://support.microsoft.com/support/kb/articles/q159/4/18.asp
This deals with problems in printing from Word97, and suggests a new registry setting similar to that for Excel (see at the end of Section 3.6.3 The euro symbol in Excel 97).

In print preview, depending on zoom level, Office applications may use small fonts which do not enable the euro to be viewed. This will not affect the actual printing.

You are advised not to remove the System attribute from your \WINDOWS\FONTS or \WINNT\FONTS directory, for if you do you may find that Windows (NT) Explorer no longer offers you the opportunity to "Install New Fonts".

3.6.1 Installing euro code page and font support on your PC

On Windows NT 4, Service Pack 4 should be installed to provide (among many other things) the euro symbol support. Windows 98 users should install their Service Pack 1. The euro-enabled Tahoma system font is included in both these service packs and in Office 97 Service Release 2, and the latter has euro-enabled versions of many other fonts, with more available from the Office Update webpage. Tahoma can also be obtained from
    http://support.microsoft.com/support/kb/articles/q175/0/15.asp

If additional euro-fonts are needed, continue with any or all of steps a, b, c and d:

a) Select and download any fonts you want from the Microsoft Typography "TrueType core fonts for the Web" web page, on
    http://www.eu.microsoft.com/typography/fontpack/default.htm and install them.
    An example might be the fixed-pitch Andale Mono, which has an unusual zero (0).
b) If you use Office 97, you can obtain some additional Euro Fonts from
    http://officeupdate.microsoft.com/downloadDetails/offeurofonts.htm

c) If you have access to the new euro-enabled fonts made available by Hewlett-Packard in FontSmart v2.5, v3.0, or v3.1, or downloaded from their web site, install as many of these fonts as you wish.

d) Additionally, install any other euro-enabled fonts you wish from other sources (such as Monotype or Lexmark, for example).

3.6.2 The euro symbol in Word 97

Change to the selected euro-enabled font. Then to obtain the euro currency symbol, €, in a Word 97 document,
- press AltGr+4 (or Ctrl+Alt+4), in the UK & Eire,
- or AltGr+e, in most other countries,
- or use the Insert Symbol (normal text, Currency Symbols) method,
- or hold down the Alt key while typing 0128 on the numeric keypad.

Third-party fonts may use a different keystroke sequence to generate the euro symbol – see their accompanying documentation, or try the suggestions in section 3.3.1 Installing euro support on your PC, especially the Insert Symbol method (for Symbol fonts).

Word 97 automatically renders a single character (such as the euro) as a bitmap, without needing any print driver settings to be changed.

The word "Euro" is recognised by the Word 97 spell-checker, but the lower-cased form "euro" is rejected, erroneously.

3.6.3 The euro symbol in Excel 97

Consider whether or not you wish to make the euro the default currency symbol, via Control Panel ⇨ Regional Settings ⇨ Currency ⇨ Currency symbol. In the UK, the drop-down box offers the choice of £, $ or € (or you *could* type in any other character). Beware that changing the default currency symbol *could* have implications for all your existing spreadsheets.

If you have made the euro the default currency, you should have no difficulty in specifying a currency amount in euros in Excel 97. If, however, you have kept the £ (or $, or your own national currency) as the default currency, and you wish to format one or more cells to contain a euro currency amount, you may need to set up a new currency style based on one of the originals, and then format the range of cells with this style. Here is one possible way to do this:

a) click on Format then on Style, and in the Style Name box type your chosen name for this style, such as euro-currency.

b) now click on Modify – this takes you to Format Cells.

c) if you wish always to use a particular euro-font for spreadsheets, click on the Font tab and choose a font which you know contains the euro symbol. Change any other characteristics of the font you wish.

d) click on the Number tab then on Category:Currency and observe in Symbol that there is no euro symbol (€) available in the items in the drop-down box. Neither is EUR present in the list of the three-letter currency symbols – however the obsolete European Currency Unit abbreviation XEU is still available (in both Office 97 Service Releases 1 and 2).

e) click on Category:Custom and chose one of the possible 'Type' currency formats containing the £ sign so that it appears on the top line. (The four fields in order mean: format for positive numbers, format for negative numbers, format for zero, format for text – the last field may be absent. For further information, search Excel 97's Help for Number Format Codes)

f) replace the £ (or $) sign throughout this line with the euro symbol € , then click on OK

g) check that the options in 'Style Includes' are as you require – probably the only box that should be ticked is Number

h) click on Add to save this new style, then on OK to leave the Style window.

The required cell range can now be formatted using this new currency format, using Format ⇨ Style ⇨ Style Name: euro-currency ⇨ OK

The Microsoft web page http://support.microsoft.com/support/office/content/tahoma/euro.asp states for Excel 97:
> Microsoft Excel 97 Service Release 1 (SR-1) can send a bitmap for the euro character, but you must turn on this functionality by creating the following setting in the registry:

HKEY_CURRENT_USER\Software\Microsoft\Office\8.0\Excel\Microsoft Excel\NoWideTextRendering = 4

The only alternative to this is to ensure that the entire printed spreadsheet is rendered as graphics, by changing the printer driver options to "Print Text as Graphics" (or equivalent option); this will slow down printing.

3.7 The euro symbol in Windows 2000 and Office 2000

Microsoft state that the euro currency symbol is fully supported in Windows 2000 ("the product formerly known as NT 5"), and that all future Office applications will handle bitmap characters as Word 97 does today (by automatically rendering the euro character as a bitmap, without requiring any settings to be altered).   Windows 2000 is available only as "beta 2" at present, so any further comment here about the final product would be purely conjectural.

3.7.1 Installing euro support on your PC

No action should be required other than adding any additional fonts to those provided as part of the operating system. It is hoped that the difficulties with printer driver options and the lack of printer-resident euro-fonts will have been sorted out by then.

3.7.2 The euro symbol in Word 2000

Information awaited!

3.7.3 The euro symbol in Excel 2000

Information awaited! Reviews of Office 2000 (e.g. NTexplorer Magazine, February '99, p21) indicate that the three-letter ISO abbreviation EUR is included.

3.8 Download information for all Microsoft Windows Euro-Updates

This section collects together all the references to the Windows euro-update downloads as they exist at the time of writing.

There are two main Microsoft web areas from which links to the actual download pages can be found:

http://www.eu.microsoft.com/technet/euro/ Main Technet euro-site

► http://www.eu.microsoft.com/windows/euro.asp Euro Currency support

and

http://www.eu.microsoft.com/typography/faq/faq12.htm Microsoft Typography

It is suggested that you look at these first, because it is always possible that the download pages which follow may get changed, and because additional information is often provided.

Downloads for the individual versions of Windows can currently be found as follows:

Windows 3.x (including Windows for Workgroups 3.11)

"Windows 3.1 Euro Currency Support" from

http://www.microsoft.com/windows/downloads/contents/wurecommended/ s_wufeatured/win31euro/default.asp?site=win31

Windows 95

The "Final Windows 95 Euro Product Update" from

http://www.microsoft.com/windows95/downloads/contents/wurecommended/ s_wufeatured/w95europatch/default.asp

Windows 98

This already has euro-support built in, although additional euro-enabled fonts are provided as part of a forthcoming Service Pack for Windows 98.

Windows NT 3.51

"Euro Currency Support for Windows NT 3.51"

http://www.eu.microsoft.com/windows/downloads/contents/wuarchive/ nt351europatch/default.asp

or the file called euro351i.exe in the directory:

ftp://ftp.microsoft.com/bussys/winnt/winnt-public/fixes/usa/NT351/hotfixes-postSP5/Euro-fix/

Windows NT 4

Even though a separate euro-update is available from

http://www.eu.microsoft.com/windows/downloads/contents/wuarchive/ nteuropatch/default.asp?site=ntw

it is suggested that you apply Windows NT 4 Service Pack 4, which includes the euro currency update

http://www.eu.microsoft.com/windows/downloads/contents/wurecommended/ s_wuservicepacks/nt4svcpk4/default.asp?site=ntw

Windows 2000

This already has euro-support built in.

4. References

These are only a few of the available references to euro matters or to the euro symbol. This information changes very rapidly, and links become out-of-date. Several references have already been given in the body of the text, but they will be repeated here for convenience. Usually the 'top level' page is given, from which further links can be followed as required.

4.1 General euro information

The European Commission's Euro website (English language version):
> http://europa.eu.int/euro/html/home5.html?lang=5

The EC Information Society Project Office (ISPO) is becoming one of the prime sources for official information about the euro, and their "IT impact of the euro" web page is on:
> http://www.ispo.cec.be/y2keuro/euroit.htm

A number of standards-based reference links can be found there, and you are recommended to browse for up-to-date papers.

The EC's 26-page PDF file "Recommendation for the placement of the euro sign on computer keyboards and similar information processing equipment" (v1.5.1, 19 June 1998) is large and so loads very slowly. Either search for it near the bottom of the web page mentioned above or load it directly, but slowly, into your copy of Adobe Acrobat Reader by clicking on:
> http://www.ispo.cec.be/y2keuro/docs/eukeyb.pdf

It is a lengthy, very technical, and thus somewhat unexciting document.

Microsoft now has a considerable number of website areas devoted to the euro symbol. These often cross-reference each other or duplicate references to the same web pages. Some are updated more frequently than others – try to spot the references to Windows NT 5, for example!

The main Microsoft web site dealing with the euro is their Euro Currency Resource Centre on
> http://www.eu.microsoft.com/technet/euro/

There are links to a number of other web pages, particularly useful being the Euro Feature Guide, which allows the selection of Microsoft software products, each of which has a page on its euro features. There are links to the Microsoft Typography website (see frequent references throughout this document) which is invariably excellent in its coverage of euro fonts and references.

The "go EURO" website is much less extensive:
> http://www.eu.microsoft.com/europe/euro/

Microsoft has produced three White Papers on the Euro: "Best Practices for the Euro", "Guidelines for Euro Evaluation" and "Preparing Desktop Systems for the Euro", at
> http://www.eu.microsoft.com/technet/euro/white.htm

Some Office-specific information can be found in three papers on "Office Update Focus – Microsoft Office and the Euro" at
> http://officeupdate.microsoft.com/focus/Catalog/focusEuro.htm

At the time of writing, there appear to be a couple of important errors and omissions. There is an apparent assumption in "Microsoft Office Support for the Euro Character, Fact Sheet" that the euro symbol can be produced only in Office 95 or Office 97, and not by earlier Office products:
> http://www.eu.microsoft.com/office/000/office/documents/euro.htm

and it is extremely difficult to find any mention of the euro update for Windows NT 3.51.

For download information about all the Euro Currency Support updates for the various Windows operating systems see the previous page, Section, 3.8.

IBM's €uroHome page has, among other things, a EuroLibrary of documents:
http://www-5.ibm.com/euro/

The official UK government website on the euro defines the UK position:
http://www.euro.gov.uk/

Unsurprisingly, the BBC has a news-based website on:
http://news.bbc.co.uk/hi/english/events/the_launch_of_emu/euro_home/default.htm

A summary of euro news, many euro documents, and much more can be found at:
http://www.euro-emu.co.uk/

Patrick O'Beirne's euro currency information is at:
http://www.sysmod.com/emu.htm
He also has a paper on the implications of the euro:
http://www.sysmod.com/euroimpl.htm
and points to a later article which describes the lessons to be learnt from the introduction of the euro and compares this with the work required for Year 2000:
http://www.y2ktimebomb.com/International/pobeirne9904.htm
There is an extremely useful 'Frequently-Asked Questions on the euro' page:
http://www.sysmod.com/eurofaq.htm
Therein he gives a reference to the Tenegra EURO2002 discussion list.

Terrapin has an informative account of their euro printing activities at
http://www.terrapin.co.uk/eurofacts.html .
They include some rarely-seen Euro information relating to IBM mainframes and EBCDIC codes *(oh happy days of yesteryear!)*.

Tomas Carrasco Benitez has an interesting document "IT aspects of the euro currency sign", which mentions some areas that you would never imagine the euro could reach, at
http://www.dragoman.org/euro/
The paper contains many useful references to standards organisations, but attempts to introduce standards of its own.

4.2 The euro symbol and euro TrueType fonts

Microsoft Typography has a definitive, well-maintained and seminal web page about their support for the euro currency symbol (the "eu." in the link relates to the European website mirror):
> http://www.eu.microsoft.com/typography/faq/faq12.htm

and it is worth checking their 'What's New' page for changes:
> http://www.eu.microsoft.com/typography/news/whatsnew.htm

A TechNet article about euro support within the various components of Office 97 can be found on the TechNet CD as Q188081 or on the Microsoft support website (no European mirror) on:
> http://support.microsoft.com/support/kb/articles/q188/0/81.asp

Developments are occurring rapidly on Hewlett Packard's font websites, and it is worth reading their "drawer statement *[huh?]* of euro support in HP printers" at
> http://www.fonts.com/hp/euro/drawerstatement.htm

for indications of what needs to be done for their DeskJet 1200C and 1600C models.

Technical documents from Hewlett-Packard about their support for the euro can be found on:
> http://www.hp.com/cposupport/euro/indexes/e_techdocs.html

A resource on euro typography, with many links, is deeply buried on their web site but directly addressed at:
> http://www.euro-emu.co.uk/zbd/typo.html

Unfortunately, this has not been updated for many months and is well out-of-date.

The "Project Euro" view on font design and character placement:
> http://www.rural.co.uk/emu/fonts.htm

For information about Apple's implementation of the euro on the Macintosh, see:
> http://developer.apple.com/technotes/tn/tn1140.html

4.3 Chargeable Euro Solutions and TrueType Euro Fonts

There is no clean distinction between "solutions" and "fonts", since an increasing number of suppliers offer both. It is impossible to include references to all the firms who provide euro-offerings. Some of the fonts are being offered for sale at dramatic prices – so investigate, and choose wisely.

4.3.1 Chargeable Euro Solutions

A number of solution providers can be found on Microsoft's Euro Tools web page at:
http://www.eu.microsoft.com/technet/Euro/tools/tools.htm
and on the Microsoft Typography Euro currency symbol news links page
http://www.eu.microsoft.com/typography/links/news.asp?NID=608

The Irish firm Eurosymbol Ltd offers EuroSymbol, a converter for network users of MS Word 97, which searches Word documents for monetary amounts, and automatically converts and replaces (or appends) the new euro values. In addition, it automatically inserts the official euro currency symbol, using their own TrueType "EuroFont" which contains the EC-logo-shaped symbol.
http://www.eurosymbol.com/
This font is available for "free download", for which a donation to their charities is suggested. They have chosen the same font name, EuroFont, as that installed by the much more comprehensive font package available from Lexmark (see Section 4.4), but this is unlikely to produce many problems!

Heidi Computers, also in Ireland, offers "HelloEURO", now at version 2.1. This allows figures within Word documents, Excel spreadsheets, PowerPoint slides, Access databases and any Windows applications which can use the clipboard to be converted to the euro currency. Various currency converters are included in the software.
http://www.helloeuro.com/

EuroType Ltd offers euro keyboards, a range of euro font services, "professional solutions to single-currency computing" and their EuroGlyph software, supporting Windows NT 3.51 (as well as Windows 3.x, 95 and NT4) at:
http://www.eurotype.com/

NRB Systems (Neil Beshoori) has an interesting 'EuroKey' keyboard solution for all Windows platforms, marketed mainly by:
http://www.terrapin.co.uk/eurokey.html
This product uses an icon either on the desktop or on the System Tray to turn on or off a selectable key combination (such as AltGr+e or AltGr+4). When this feature is set on, the key combination will produce a euro symbol in the selected font. A demonstration version is available for download but prices of the full version have not yet been provided.

Fontware specialises in adapting fonts to contain the euro symbol, and producing printer cartridges and SIMMs:
http://www.fontware.co.uk/euro.htm
They also market NRB Systems' EuroKey package under the name FontKey.

4.3.2 Chargeable TrueType Fonts

Most of Hewlett Packard's fonts and FontSmart are supplied free with the newer and larger HP LaserJet or DeskJet colour printers (see the font examples in Section 1). If you have not purchased a recent HP LaserJet or DeskJet printer, it is possible to buy the newest version of FontSmart (which include additional euro-fonts) for $49 – see the website:

http://www.fontsmart.com/faqs.htm

Look also at HP's other font website,

http://www.fonts.com/

for recent developments.

Xerox have produced a font of undisclosed cost called Xerox Euro. This contains 24 styles of the euro symbol appropriate to different fonts, mapped to the characters A to X.

€ €

For example, pressing A produces a euro symbol which matches Courier (the first character above), pressing B gives a euro symbol to match Times, Garamond, Palacio and Palatino (the second character above), and so on. About half of these euros have been made the same width as the numbers in that font. See:

http://www.font.net/euro.htm

Bitstream have produced a Currency Pi font which contains the 'logo-shaped' euro symbol as well as several other currency symbols on:

http://www.bitstream.com/products/world/currencypi/index.html

but are also not giving the price. Additionally, they are designing euro currency symbols to match the fonts in the Bitstream library.

Formula Solutions will customise your fonts to include the euro symbol, or provide a font which contains one or 65 variations of the euro symbol:

http://www.formula.co.uk/euro.htm

€ € € € € €

Fontworks displays their Guide to the Euro Currency Symbol, including a number of differently-sized GIFs of the euro logo, half of them reversed-out, at:

http://www.type.co.uk/fw/euro-symbol.html

and suggests you contact one of their staff for custom solutions.

The EuroMatch font (*"$29.95, approximately £9.98 or 17 Euro"*, they say) contains many different representations of the euro symbol:

http://www.matchfonts.com/pages/euromatch.html

0 1 2 3 4 5 6 7 8 9 : ; < = > ? € €€€€€€
€€€€€€€€€€€€€€€€€€€€€ [\ ] ^ _
Pta€€€€€ €£€€€€€€€€€ € € € € €€€€
€€€{ | } ~ FSFFFFrₐₗₓFBDM ' ° ¢ £ § • ¶ ß ® © ™

Their shareware 'evaluation' font has a euro symbol € (generated by the letter A) which is deliberately jagged at large point sizes – it is supposed to be limited to 100pt on the screen and 24pt on printers. Michel Bujardet, the developer, says that the *registered* version gives impeccable results at all point sizes.

It's worth starting at

http://www.fonteuro.com/

and working downwards just to see the 'hand embroidered'/cross-stitched nature of this French web site, which has a variety of licensing options for fonts containing euro symbols. Their use of English is not particularly straightforward.

A font which contains the EC-shaped euro as well as some European Community 13-star flags (see below) is available from M (or is it Gavin?) Murray in Southampton (England) at

http://www.qumic.demon.co.uk/euro/#ENGLISH.

The euros look like:

and the flags:

Costs are given in almost every conceivable currency!

Laser Solutions (mailto:steve@lasersol.demon.co.uk) has created a pair of TrueType fonts, EuroEC and EuroECit (the italic version), containing two sizes (€€) of the EC-shaped logo, to match closely the heights of Arial numerics and the slightly smaller Times New Roman numerics, respectively, at the same point size. The regular and italic versions are identical, to *prevent* the EC euro symbol from being italicised.

4.4 Free TrueType Euro Fonts

You should check carefully whether there are any licensing restrictions on the use of these fonts, particularly for business use. 'Free' does not necessarily mean 'free under all circumstances'.

There are several Microsoft sources of euro-enabled fonts. Recent euro updates and service packs for all current Windows operating systems will include some updated fonts. Others may be obtained from Microsoft Typography's "TrueType core fonts for the Web" fonts page:
http://www.eu.microsoft.com/typography/fontpack/default.htm

Registered users of Office 97 (and 95?) can obtain euro-updates to many of the fonts [Arial Black, Arial Narrow, Book Antiqua, Bookman Old Style, Century Gothic, Comic Sans MS, Garamond, Haettenschweiler, Impact, Monotype Corsiva, Tahoma, Tahoma Bold, Trebuchet MS, Verdana] which were originally supplied in Office 97 (and 95?) from the package 'More Euro Enabled Fonts for Microsoft Office':
http://officeupdate.microsoft.com/downloadDetails/offeurofonts.htm

To customers with LaserJet printers, Hewlett-Packard provides versions (for Windows 95/98, 5.5MB, and for Windows NT 4, 5.0MB) of an update which supplies euro-enabled versions of the 45 fonts provided with HP LaserJet printers. See the Hewlett Packard Euro Commitment website at
http://www.hp.com/cposupport/euro/indexes/euro.html
for the conditions of use. These require the appropriate Microsoft euro-updates, where relevant. The "HP LaserJet EuroGuide" from this package is well worth reading:
http://www.hp.com/cposupport/euro/indexes/euroguide.html

Some free euro-enabled fonts can be downloaded from Hewlett-Packard's FontSmart web site, on   http://www.fontsmart.com/fonts/freefonts.htm.
Currently available are Bodoni, Dark Courier, Garamond and Ozzie Black. You may *already* have fonts like Garamond (or Goudy Old Style) installed on your PC, and installing the new Hewlett-Packard euro-versions without prior investigation can cause complications – be warned.

HP also makes available at the same site a set of soft font files which give mainly DOS users the ability to print the EC-logo-shaped euro symbol. These also may be obtained via:
http://www.fontsmart.com/fonts/eurofont.htm
as a small range of bit-mapped PCL soft fonts, PCLeTTo format, and the 'Euro Sign' and 'Euro Sign Mono' TrueType fonts (which can be used on *all* Windows operating systems).

A cut-down version of FontSmart v2 called FontSmart Lite (v2.49) is available for free download (after registering) from:
http://www.fontsmart.com/progs.htm
A number of Hewlett Packard font families are available for installation from this package: Bodoni, Century Schoolbook, Clarendon, Garamond, Graphos, Letter Gothic, Metrostyle, Ozzie Black and Strider. Dark Courier is also supplied, but not recommended unless you "need compatibility with documents generated by LaserJet printers before the HP LaserJet 4".

As mentioned in section 1, Monotype has produced euro-symbol-only versions of a small number of their fonts (both PC and Macintosh versions) on
http://www.monotype.com/html/oem/euro_font/download.html.
The licence appears to restrict their use to no more than five computers.

Lexmark has produced a EuroFont package in six languages which has a TrueType and a Type 1 format font containing 82 different euro symbols (not 'merely' 75 as their web site says) drawn from rather more than 20 font families. These fonts appear to be a major subset of those shown in Section 1 for Hewlett Packard. Here are just some of the euro symbols:

€€ €€€€€€ €€€€€€€ €€€€ €€ €€€€€€€€€ € and €

Download the package from:
http://www.lexmark.com/software/eurofont.html

Martin Vogel's Symbols TrueType font contains an euro-logo-shaped symbol, €, three other euro symbols, €, €, €, and many other unrelated symbols (e.g. ✉ ℂℰ ⚡ 🔔 ⌁ 🛑 ☕ ⚽). This is one of the few fonts to include numerics and punctuation symbols. See

http://homepage.ruhr-uni-bochum.de/martin.vogel/marvosym.e.html

Martin often updates the font with new or modified characters.

The EuroCollection of idiosyncratic euro-shapes is available in TrueType, Type 1 Postscript and Mac format, from a German site:

http://www.svensson.de/skylla/euro.htm

€€€€€€€€€€€€€€€€€€€€€€€€€€€€€€€€ and €
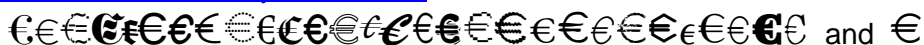
Be amused at what AltaVista's 'BabelFish' automatic translator makes of their German web page, by clicking on the following URL and then on the Translate button.

http://babelfish.altavista.digital.com/cgi-bin/translate?lp=de_en&urltext=http%3a%2f%2fwww%2esvensson%2ede%2fskylla%2feuro%2ehtm

Inspect the table of symbols then click on the download of whichever platform you require (Imperial College, London, is apparently acting as an FTP site for them).

If your PC has Adobe Type Manager, you can download Euro Sans, Euro Serif and Euro Mono Type 1 fonts, each having the usual four styles, regular, bold, italic and bold italic:

http://www.adobe.com/supportservice/custsupport/LIBRARY/5036.htm

Sadly, the most complete Unicode font, Bitstream's Cyberbit (February 1997), was not updated to include the euro symbol before it was withdrawn from the Bitstream website. This TrueType font was 12.7M bytes in size, and included 28,218 of the currently-defined 38,887 characters of the Unicode standard. Microsoft's largest font, Lucida Sans Unicode (317K, 1,776 glyphs) is euro-enabled only in the updates to Windows NT 4 and NT 3.51.

Macintosh users can download a pair of TrueType and Postscript fonts which give the euro logo shape from:

http://www.maccampus.com/EuroLogo.htm

The Microsoft Typography "TrueType core fonts for the Web" are available in euro-enabled Macintosh versions at:

http://www.eu.microsoft.com/typography/fontpack/default.htm

Hewlett-Packard provides information and some free fonts for various versions of Mac OS on the Macintosh:

http://www.hp.com/cposupport/euro/indexes/e_mac_free_fonts.html

4.5 Some Suggestions for Euro TrueType Fonts

The following tables contain my *personal* suggestions, which are biased towards cheapness and the major manufacturers. It is presumed that you are able to agree to and accept whatever licensing conditions (if any) are required by the manufacturers or developers to download and use their fonts. The overriding rule is that you **must not** sell these fonts commercially.

Windows 3.x *without* the Euro Currency Update		
Characters available in font	**Suitable for use in**	**Suggested TrueType fonts**
Just the EC euro 'logo', €	Word only	HP's Euro Sign fonts or SymbolPS; Monotype's Symbol Euro
One (or more) euro symbols but no other characters	Word only	Lexmark's single EuroFont; Monotype's multiple Euro fonts
Full character set including one (or more) euro symbols	Both Word and Excel	EuroMatch and Martin Vogel's Symbols font are two of the very few fonts which include numerics and punctuation characters

Very recently, Microsoft has provided limited euro support in Windows 3.x. You might wish to add additional euro fonts to the three provided.

All Windows operating systems with euro support added		
Characters available in font	**Suitable for use in**	**Suggested TrueType fonts**
Just the EC euro 'logo', €	Word only	HP's Euro Sign; Monotype's Symbol Euro
One (or more) euro symbols but no other characters	Word only	Lexmark's single EuroFont; Monotype's multiple Euro fonts
Full character set including one (or more) euro symbols	Both Word and Excel	Microsoft fonts supplied in the euro update and in Office updates; Microsoft Typography's 'TrueType core fonts for the Web', and/or 'More Euro Enabled Fonts for Microsoft Office'; HP's FontSmart or LaserJet euro-fonts

5. The Shape and Grammar of the Euro

5.1 Comments on the EC 'logo shape' euro symbol

Michael Everson has a number of references on his web site
http://www.indigo.ie/egt/standards/iso10646/euro/
a short one of which is about the euro shape, on:
http://www.indigo.ie/egt/standards/iso10646/euro/euroglyph.html
which points to some extracts from the "Typographers discuss the Euro" thread in the discussion group TYPO-L in December 1996 (yes, it really has been that long!):
http://www.indigo.ie/egt/standards/iso10646/euro/eurotypo.html
Therein is found a fascinating series of apparently-official quotes from that era:

"The Euro Symbol™ has been specially drawn to represent the aspirations of the European Union. It must not be redrawn, scaled, distorted or altered in any way. It must only be reproduced from a master original."

"The Euro Symbol™ may only be used in sizes of 5mm increments, measured across measure bar A. For sizes smaller than 40mm, the small use version must be used. It may not be used at any size smaller than 7.5mm."

"The Euro Symbol™ must precede all figures used to indicate prices. Other arrangements will not be acceptable".

"The Euro Symbol™ can only be reproduced in European Union Blue (PANTONE 281) or Black. It must never be reversed, or appear in any other colour combinations".

Somewhat historical comments, informed and interesting, on the New Euro by a typographer, Neil Kandalgaonkar:
http://www.yuiop.com/type/euro/
He is one of the typographers who can be credited with the changing of EC attitudes to the presentation of the euro symbol. He intends to update his paper in the near future.

Vincent Connare of Microsoft comments on the design of the euro symbol in his "Character Design Standards":
http://www.eu.microsoft.com/typography/developers/fdsspec/monetary.htm

"All well designed images in a font should match the style, weight and look of the host font. The European Union has shown exact specifications for their standard design of this character. Type designers have unanimously agreed that this is a character and not a logo. And for it to be included in their font, its design should be consistent with the typeface and have the same requirements as other monetary symbols."

Hewlett-Packard has produced a White Paper which discusses the background to printing the euro currency symbol, on
http://www.hp.com/cposupport/euro/indexes/whitepaper.html
There is also a lengthy technical discussion of the design processes they went through to implement the euro currency symbol in their range of fonts, starting at
http://www.fonts.com/hp/euro/Eurodev1.htm

5.2 The 'allowable' forms in English of the 'euro' currency unit

The following linguistic diversion relates to the word 'euro' *as a* <u>unit of currency</u> *only.*

There has been much discussion about whether the word 'euro' can take an initial capital letter or not, and whether the plural form should be 'euro' or 'euros'. There seems to have been a progression towards treating it in English in the same way as the names of other currencies, as the following discussion is intended to show.

In the two Council Regulations of May 1998[2], the word 'euro' is found consistently as both the singular and plural form of the word, without an initial capital letter, for uniformity across all EC countries. Although the Regulations do not explicitly *impose* this usage, they and their predecessors seem to have led to tortuous efforts in many official EC documents to *avoid* the plural form 'euros' at all costs. See, for example, a general euro-leaflet "**Talking about the euro**" (1997, 16pp, 710K) at

> http://europa.eu.int/euro/html/dossiers/00006/00006-en.pdf

where only a single use of 'euros' can be found as the plural of the currency unit.

On the following EC web page:

> http://europa.eu.int/euro/html/rubrique-commission5.html?lang=5&rubrique=114

the third reference loads a file: "**Spelling of the words 'euro' and 'cent' in the official Community languages – to be used when drawing up Community Legislative acts**"
(note that the second half of the title was added in an update made on 8 January 1999):

> http://europa.eu.int/euro/html/dossiers/00219/00219-en.pdf

This has a footnote on the English language plurals 'euro' and 'cent':

> "This spelling without an "s" may be seen as departing from normal English practice for currencies."

Contrast the fact that the table entries for France, Spain and Portugal all show "euros" and "cents" as being the plural forms in these languages, which seems rather inconsistent.

A contrary, and rather more reasonable, view is found in section 12.12 of the *English Style Guide* (1/9/1998) of the European Commission's English Translation Service

> http://europa.eu.int/comm/sdt/en/stygd/enstyle.pdf

> "*The euro*. Like the ecu and other currencies, the 'euro' is so written in running text, in lower-case throughout, no initial capital. Its plural is 'euros'."

So 'euro' and 'euros' are regarded as valid, but *not* 'Euro' or 'Euros', except where the word appears first in a sentence, or perhaps in the usual capitalisation of important words in titles or headings. An Email message from Felicity Lewis, the then head of the English Translation Service, included the paragraphs:

> "Languages have their own conventions as regards capitals etc. In English, currencies in running text are lower-cased: francs, marks, etc. So lower-casing 'euro' for the currency is a matter of English usage, not Euro-legislation.

> For the plural [...] the form *must* be 'euros', on the lines of 'marks', 'francs', pesetas' etc. It would be extremely odd to depart from customary English usage for the names of currencies. So, for example, 'Prices are denominated in euros.' "

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[2] Council Regulation (EC) No 974/98 of 3 May 1998 on the introduction of the euro, Official Journal L 139, 11/5/1998 p.1; Council Regulation (EC) No 975/98 of 3 May 1998 on denominations and technical specifications of euro coins intended for circulation, Official Journal L 139, 11/5/1998 p.6.

My most recent communication (30 December 1998) about the spelling of the euro has:

> "As a result of a ruling by the alternates of the Monetary Committee in September 1998, *euro* and *cent* are invariable in legislation. In all other cases, especially publications intended for the general public, write *euros* and *cents*."

The Bank of England now appears to have come round to a similar view. In their publication "**Practical Issues Arising from the Introduction of the Euro**", Issue 9 (September 1998), Chapter 8, Section 6 – found a few steps on from:

   http://www.bankofengland.co.uk/piq.htm

(the direct reference is:

   http://www.bankofengland.co.uk/eu9ch8.pdf)

we read (on page 4) :

Euro and euros

6 The European Commission is considering the correct usage of the words 'euro' and 'cent' in all the Community languages. Although the Regulations on the euro have, in their English version, used 'euro' and 'cent' in the plural, without adding an 's', it has been pointed out that this runs counter to normal English usage in most circumstances (and is also contrary to the usage suggested by the Commission for languages other than English). In practice, normal English usage would always include an 's' in the plurals of euro and cent when amounts are being described, although it would be possible to omit the 's' when the intention is to describe the euro as the currency in which a price is denominated (analogously to the word 'sterling').

The Daily Telegraph (5 January 1999) had a relevant article on this subject. If still available, the URL is:

http://www.telegraph.co.uk/et?ac=000283800036613&rtmo=wMA0lwMb&atmo=tttttttd&pg=/et/99/1/5/neu305.html

Old Lady is given the last word
By Toby Helm in Brussels

EVERYBODY knows how to spell the word euro. But what happens when there's more than one? This was the question as trading began.

The EU's official English version of the regulation setting up the single currency said the plural should be euro, without an "s". But the Bank of England insisted in its literature that it should be written as euros.

After a brief flurry and banging of eminent heads together, the commission bowed to the greater wisdom of Threadneedle Street. A spokesman said "We decided that in English the plural of the euro will be euros for evermore, just as it is in French."

An EU official said: "If this is the biggest problem we have during the life of the euro, then we'll have the most successful currency the world has ever seen."

The fact that the authors of the regulation fought shy of the word euros might be due to its closeness to the Greek word meaning urine.

So there now seems to be something of a consensus on the matter – let the lawyers and official documents have their own tightly-defined usage, if they wish, while the rest of us treat the euro currency word in the same way as we do all other currencies in English.

There is an interesting parallel between the official attitudes towards the spelling of the euro and the original shape of the euro symbol:

COMPARE …	Original requirement	Revised usage
The euro symbol	EC-specified logo-shape, €, must not be altered and may be reproduced only at EC-defined sizes and colours	Euro symbol matches the style of the font in which it appears, e.g. €, €, €, and may be printed at any size
The plural of 'euro' as a currency unit	EC Regulations imply that the plural form should be 'euro'	The plural form in standard English usage is 'euros'

It is expected that common sense and standard usage will triumph over bureaucratic regulation.

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Technical notes on this document

The Word 97 version

This Word 97 document originated as a single page (version 1.0) in early February 1998, and it has required updates at roughly 10-day intervals since then until the end of 1998. Future updates are expected to be fairly infrequent now that Microsoft has produced the last of the Euro Currency Updates, and since the euro became an official currency on 1st January 1999. This document can be printed directly from Word 97 at my own PC only, since it requires the full Windows NT 4 Service Pack 4 keyboard, font and national language euro support, and a large number of euro-enabled fonts. Consequently, the only practical measure for other users is to provide it in Adobe's Portable Document Format (PDF) form, for viewing by Adobe Acrobat Reader (suggested versions v3.02, 32-bit, or v3.01, 16-bit, or the new v4.0 when introduced).

The Adobe Acrobat Portable Document Format (PDF) version

1. Adobe PDFWriter v 3.03 can find no more than 40% of the fonts installed on my PC, and consequently a PDF produced by this method omits most of the expected euro symbols when displayed on PCs other than my own. Adobe Technical Support says that PDFWriter "is intended only for simple documents".
   The PDF document at which you are probably looking is generated using Adobe Distiller Assistant 3.01 to invoke Adobe Distiller 3.02 using the AdobePS 5.0.1 PostScript driver [yes – honestly!], which, with appropriately-chosen compression options, results in a PDF file of just over 400K (if uncompressed, about 85% bigger), somewhat larger than the original Word 97 DOCument file.

2. If you should print the PDF version of this document on a printer *without* having set your Printer Properties or Document Options to 'Print Text as Graphics' or 'Print TrueType as Graphics' (or equivalent), you may find that *some* instances of euro symbols or the 'empty box' character, □, are unaccountably missing from the printed copy even though they appear correctly on the PC screen.