

Your product platform may be compact. Your market may be worldwide. What you need is an embedded multi-lingual text solution that scales to fit both your product and your market.



That solution is the iType font engine.
Your partner is Monotype Imaging.

EMBEDDED TEXT TECHNOLOGY FOR A MULTILINGUAL WORLD

Here's what we offer:

PERFORMANCE

The iType font engine is designed to satisfy the particular demands of memory-constrained devices — whether those demands involve legibility, display quality, storage capacity, portability across devices, speed, font choice or all of these.

CRITICAL MASS

It takes worldwide resources to build a global selection of fonts and the technology to use them. Monotype Imaging is an international company with offices in the U.S., the U.K., Germany, China and Japan, with additional resources in Taiwan and Korea. Our professionals include specialists in a variety of disciplines, including typeface design, typographic engineering, language expertise and type production.

MARKET PRESENCE

We produce fonts and font technologies for consumer electronics devices, displays and printers that generate text in a variety of languages. Some of our fonts are part of standard operating systems, including the Windows® and Mac OS® platforms. We also offer a rich assortment of typeface products — more than 100,000 are available from Monotype Imaging's Fonts.com™ store for creative professionals working in desktop environments.

COMMITMENT

Monotype Imaging is committed to developing fonts and font technologies that best meet customer needs — whether for global, regional or local distribution — now and into the future. We're also active in industry standards organizations to promote technologies that enable stylistic, scalable fonts in display environments.

When's the best time to leverage a technology advantage?
When it's also a competitive advantage.

A Great Time to Look Great

Consider three issues that can adversely impact the display quality of embedded text: low resolution, small screens and small text size. Even when others can't address these issues, you can — with the iType font engine.

The result is a product that features:

- *Easy-to-read text, even at small sizes*
- *Properly composed text in the user's language*
- *Aesthetically appealing typefaces that complement on-screen graphics*

High-quality text completes the “fit and finish” of a professional-looking product.

STANDARD:



SMARTHINT™
TECHNOLOGY:



SMARTHINT TECHNOLOGY

A key Monotype Imaging innovation is SmartHint technology, a patent-pending technique applied to East Asian characters that ensures high-quality display and readability at small text sizes. SmartHint technology allows for the efficient addition of “hints” (typographic coding applied manually by typographic specialists) to improve display quality.

SmartHint technology enables intelligent scaling of East Asian characters. At larger sizes, characters are more uniform and regular. At smaller sizes, correct spatial relationships are preserved. In some cases, strokes are removed from characters without changing the meaning of characters. Without SmartHint technology, spaces between strokes can disappear, making characters look blotted.

SmartHint technology also retains the benefit of scalability. Embedded bitmaps are no longer needed to ensure high-quality display at small sizes. Multiple stored versions of bitmaps are also not needed as a way to support multiple text sizes. Anti-aliasing effects may also be applied — something not possible with bitmaps — to soften jagged effects around curves and edges to improve on-screen display quality.

Although not limited to a specific font format, Monotype Imaging has introduced its new technology through the company's SmartHint-enabled East Asian ESQ® Mobile stroke-based fonts.



SCALABLE FONTS SCALE YOUR BUSINESS TOO

The way modern computer systems change the size of text is to scale it rather than store individual bitmaps of all characters at various sizes.

One problem with bitmaps is that they consume lots of memory. Another is that they often don't display well in combination to form words. For example, character shapes can't be changed to obey language conventions or enhance readability, such as by adding accent marks or to spacing proportionately. Nor can sizes be selected for display other than those for which bitmaps have been pre-rendered and stored.

Scalable fonts store characters as data sets that define either outlines or strokes. The font engine scales the outlines or strokes and then fills them in to render the character to the specific size the application has requested. The font engine may also call out hinting instructions, which optimize characters at specific sizes to ensure crisp on-screen viewing.

But scalable type can help businesses scale too. Scalable fonts make it much easier to introduce new products, new product features and new typefaces within products than is possible with a bitmap solution with its big memory requirements. Scalable fonts also make it easier to deploy advanced features — like custom-tailored user interfaces — especially in products with small memories and displays. The key is having a scaling engine optimized for that purpose and fonts able to exploit the engine's advanced features.

Monotype Imaging's iType font engine is a scalable font rendering subsystem based on industry-standard TrueType® and OpenType® font standards. Designed to work in mobile phones, television set-top boxes, interactive TVs, console displays, portable media players, camcorders and other resource-constrained environments, the iType font engine brings the benefits of scalable type and high-quality multilingual font display to the embedded environment.



Highlights

HIGH-PERFORMANCE ARCHITECTURE

Optimized for both space efficiency and speed, the iType subsystem lets you tune the engine's already small footprint even smaller by selecting at build time only the resources you need. Performance features such as multithreading and high-speed character caching remove process bottlenecks.

PORTABILITY

The iType font engine is packaged as ANSI C source code for broad, flexible integration in a variety of devices and applications. A simple API makes integration easy.

MULTILINGUAL FONT SUPPORT

Scalable fonts designed for optimal display quality and minimal storage requirements are available for specific devices. Monotype Imaging also offers scalable, multilingual TrueType fonts that may be integrated or customized. Where bitmap fonts are required, a utility is available to convert scalable data to bitmaps, which have the look of scaled type. Monotype Imaging offers custom design services for scalable and bitmap fonts.

ESQ MOBILE FONTS

Tailored for crisp readability on small screens, ESQ (Enhanced Screen Quality) Mobile fonts are available to lend "theme-based" personality to applications, user interfaces and content. ESQ Mobile fonts based on the Latin-1 character set are available in the OpenType font format. East Asian ESQ Mobile fonts are scalable, stroke-based designs that leverage Monotype Imaging's patent-pending SmartHint character fine-tuning and compression/decompression technology.

HINT PROCESSING

In addition to SmartHint technology, the iType font engine reads and processes hints that typographic engineers have applied manually to optimize Latin-based or other multilingual fonts for high-quality text display at various sizes. Hints allow for precise adjustments to character shapes. Appropriate pixels are turned on or off to maximize legibility.

COMPRESSION TECHNOLOGIES

Patented font compression/decompression algorithms save significant memory for font data storage. They provide random-access capabilities allowing portions of font data to be decompressed as needed at run-time — so users receive space-saving benefits without paying performance penalties. Font compression can also be applied when downloading fonts between connected devices, reducing needed bandwidth and transmitted data size.

FONTS IN A BOX™



This iType feature compensates for characters that might otherwise be clipped when rendered on a small display — something that doesn't happen in desktop environments or where limitations associated with small screens don't exist. The problem occurs when diacritics such as accent marks should display on top of a character, extending its height beyond the display region for that character. Rather than simply clip the character — a normal action when using standard composition techniques in resource-constrained environments — the iType font engine intelligently reshapes the character. It then appears properly proportioned next to other characters yet fits fully in the display. The capability also applies to descenders (such as the lowercase y), which also might otherwise be clipped.

LINKED FONTS

The iType font engine solves the problem of how to efficiently run applications that require multiple fonts, for example, to support multiple languages, in a single device. Font linking reduces the memory footprint by eliminating data redundancy when using multiple language scripts. Monotype Imaging provides a font linking utility to easily create custom linked sets of fonts for particular markets or regions. Special characters can be added to a linked font without altering the original component fonts. The iType software will also link bold and nonbold fonts and automatically embolden the nonbold font to maintain a consistent appearance across all characters in the linked font set.

EASY INTEGRATION WITH WORLDTYPE® LAYOUT ENGINE

Monotype Imaging's WorldType Layout Engine builds on top of the iType font engine and handles the often complex rules associated with text composition and layout using languages from around the world. Combined, the two represent a simple, tested solution for reducing time to market and improving the quality of embedded products requiring multiple language and text layout support.



Our relationship with QUALCOMM means that adopters of the BREW® solution, which includes a development platform and content-delivery system for deploying graphically rich content across a broad range of low- to high-end mobile phones, can leverage scalable fonts and multilingual benefits supported by the iType font engine.



Our partnership with Symbian means that Monotype Imaging technologies will be part of the Symbian OS™ SDK and that adopters of Symbian OS will experience the benefits of successful text deployment.



More than rich media

Our partnership with Ikivo, a leading provider of industry-standard Mobile SVG (Scalable Vector Graphics) solutions, is bringing the benefits of stylistic, scalable fonts to the SVG environment for creating rich media applications and content.

Other platforms compatible with the iType font engine include the Linux®, Java™ and HTML/CSS platforms. We also work with key standards-setting organizations such as the Java Community Project, the Khronos Group, MPEG, Unicode™ and the DVB® (Digital Video Broadcasting) Project.



Standards leverage your investment

A great solution does not translate into a profitable business if it must be reinvented each time it is transferred to another device. That's why the iType font engine supports key standards in the embedded space — and why Monotype Imaging works closely with standards leaders.

The iType font engine enables compliance with key industry specifications, such as:

- FCC 708B closed captioning requirements for digital TVs
- Japan's ARIB (Association of Radio Industries and Businesses) data encoding and transmission specification for digital broadcasting
- Character requirements of the i-mode™ Japanese Internet access platform
- The HD-DVD and Blu-ray Disc™ digital optical media formats, which have standardized on the OpenType format for type support
- MPEG-4 graphics and video compression technology
- The MHP® (Multimedia Home Platform) and the OCAP™ (Open Cable Application Platform) open standards for interactive and mobile TV — applications that have standardized on the OpenType format for downloadable fonts

Specifications

FONT ENGINE

- Small footprint of ~90KB
- Unicode and native encodings supported
- Memory sharing — multithread and multiprocessor support
- Flexible caching system
- Anti-alias output
- Special effects, including drop shadow, emboss, engrave, outline, depressed, uniform, bold, mirror, rotate, skew, raised and softness
- Supports hinting techniques, including SmartHint technology

FONT FORMATS

- TrueType
- OpenType (TrueType + extensions)
- Monotype Imaging stroke fonts (Japanese, Chinese, Korean)
- Bitmap fonts (including colored icons)

COMPRESSION/DECOMPRESSION

- Monotype Imaging ACT™ (Asian Compression for TrueType)
- CCC compression/decompression
- SmartHint compression/decompression

ITYPE FONT ENGINE SDK CONTENTS

- iType TrueType rasterizer in ANSI-C source code
- Evaluation fonts
- Sample and demo code
- Developer user guide (PDF)

PORT-SPECIFIC FILES AVAILABLE, INCLUDING:

- BREW/uiOne™ (available through QUALCOMM)
- Linux
- Symbian OS™
- GTK/FreeType
- OSF
- Sun OS
- ARM7, ARM9, MIPS
- iTron
- VxWorks®

STANDARDS-READY SOFTWARE/FONT COMBINATIONS FOR:

- 708B
- Teletext
- ARIB
- DVB/OCAP
- W3C HTML/XML
- OpenVG
- HD-DVD
- Blu-ray Disc
- MHP

Monotype Imaging Inc.

500 Unicorn Park Drive
Woburn, MA 01801
phone 781 970 6000
fax 781 970 6001

Monotype Imaging Ltd.

Unit 2, Perrywood Business Park
Salfords, Redhill, Surrey RH1 5DZ
England
phone 44 (0)1737 765959
fax 44 (0)1737 769243

Monotype Imaging K.K.

Level 32, Shinjuku Nomura Building
1-26-2 Nishi-Shinjuku
Shinjuku-ku, Tokyo, Japan 163-0532
phone 81 3 5322 1377
fax 81 3 5322 2929

Linotype GmbH

Du-Pont-Straße 1
61352 Bad Homburg
Germany
phone 49 (0) 6172 484-418
fax 49 (0) 6172 484-429

China Type Design Ltd.

2403-4, Yardley Commercial Building,
3 Connaught Road West, Sheung Wan,
Hong Kong
phone 852 2575 6789
fax 852 2591 9232

www.monotypeimaging.com

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