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Universal Multiple-Octet Coded Character Set
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**1. Introduction.** This document proposes the addition to the UCS of 235 new graphic characters to provide compatibility with a wide range of home computers, or "microcomputers," manufactured approximately from the mid-1970s to the mid-1980s, and with the teletext broadcasting standard originally developed in the early 1970s.

***NOTE:*** *Mapping tables between legacy character sets and the allocations in this proposal are attached to the PDF version of this document.*

**2. History.** Box-drawing characters, solid and shaded blocks, and similar graphic characters were encoded in the UCS in 1991 (Unicode 1.0) for compatibility with established character sets, both in popular microcomputers—particularly the IBM PC—and in terminal-emulation software. The set of block characters was augmented in 1999 (Unicode 3.0) and in 2002 (Unicode 3.2) to cover additional platforms, due largely to proposals by Frank da Cruz (L2/98-353 through -355, L2/98-413, and L2/00-159), which also included C1 and EBCDIC control pictures, hex byte pictures, and some other graphic characters that were not accepted.

Over the years that followed, suggestions were occasionally made on the Unicode public mailing list to add characters from legacy platforms, but few formal proposals emerged. One that did was "Proposal to create a new block for missing Block Element characters," by Eduardo Marín Silva (L2/17-194), which proposed five characters from the Sinclair ZX80 and ZX81 character sets.

A list discussion in April 2017 concerning the "PETSCII" character set, used in various forms by Commodore home computers ranging from the PET (1977) to the C128 (1985), led to the formation of an ad-hoc Terminals Working Group, which is responsible for this document.

Computers of this era enjoyed a great deal of popularity—the Commodore 64 is *still*, to this day, the largest-selling single computer model of all time—and spawned a large number of computer clubs and user groups devoted to these machines. Some of the original user groups are still in existence,

and new ones, often online-only, have emerged more recently. The characters proposed here are intended to benefit these users and hobbyists, by providing round-trip convertibility of character data between legacy platforms and the UCS. They may also facilitate the creation of software for these platforms, such as emulators and cross-assemblers, and have been requested by developers of present-day text-mode applications as well, to enhance pseudo-graphical displays.

**3. Microcomputer platforms.** The group considered the following platforms and character sets:

- Amstrad CPC (464, 664, 6128, etc.)
- Apple 8-bit computers (II, II Plus, IIe, III, and the 16-bit IIGS), including MouseText
- Atari 8-bit computers (400, 800, XL, XE) ("ATASCII")
- Atari 16-bit computers (ST, STE, TT, Falcon), including the GEM windowing system
- Commodore 8-bit computers (PET, VIC-20, 64, 128) ("PETSCII")
- Commodore Amiga (500, 1000, etc.)
- MSX computers (Spectravideo SV-328, Yamaha YIS503II, Canon V-20, etc.)
- RISC OS computers (Acorn, other ARM machines)
- Sinclair 8-bit computers (ZX80, ZX81, ZX Spectrum, and Timex Sinclair equivalents)
- Tandy TRS-80 computers (TRS-80 Model I, Model III, Model 4, Color Computer)
- Texas Instruments TI-99/4A

For many of these platforms, information about the character sets and text and graphics modes was available only through scanned copies of user manuals and photographs of screens showing a full or partial character dump. The group considered additional, lesser-used platforms, such as the Mattel Aquarius, but found even less supporting information; in some cases, it was impossible to identify certain characters used by these machines.

**4. Teletext and Minitel.** *Teletext* was a service invented in the United Kingdom in the early 1970s for broadcasting pages of information, generally text and simple block graphics, to analog television receivers via the vertical blanking interval. Teletext found its greatest popularity in Europe, where it was commonplace until the adoption of digital television; almost all analog television sets sold in Europe since the early 1980s had built-in teletext decoders.

Several different 7-bit character sets were defined for teletext, including a complete set of 2 × 3 block graphics (64 in all), analogous to the block quadrants found in other platforms, as well as additional mosaic graphics. There was also a set of 27 control characters which could be used to select foreground and background color, character height (single or double), and other attributes, similar to those found in the ISO 6429 (ANSI X3.64, ECMA-48) standard which was introduced later. Figure 10 illustrates several of these display techniques used on a single page. At least one line of microcomputers (the BBC Model B Microcomputer, manufactured by Acorn) supported a teletext display mode.

A digital version of teletext, using the same character encoding model, is still in use in Romania, as shown in Figure 12.

Later versions of the teletext specification included features such as (relatively) high-resolution graphics and dynamically redefinable character sets (DRCS), which are not considered in this document.

*Minitel* was an interactive videotext service, used in France from the early 1980s until 2012, that utilized dedicated terminals and standard telephone service to provide two-way online functionality, similar to many modern-day uses of the Internet. Like teletext, Minitel was character-based and made extensive use of 2 ×3 block characters to provide simple graphics.

**5. Graphic characters.** Most of the characters proposed in this document are *semigraphics*: block-style symbols which could be combined to simulate an all-points-addressable graphic display. Many platforms used these text characters to support a so-called "graphics mode": small blocks could be "plotted" at various coordinates, and the appropriate full-sized block character consisting of the necessary "on" and "off" blocks would be displayed in text mode (Figure 9). The set also includes numerous box-drawing and shading characters, and some miscellaneous characters such as arrows and stick figures, which were present in the target platforms.

The word "sextant" is used in this document, by analogy with "quadrant"—a term used for certain UCS characters since 1999—to refer to a semigraphics block consisting of six smaller blocks or "cells" arranged in two columns and three rows. In the teletext specification, characters in this group could be displayed either with the cells joined together, as with the existing quadrant characters, or with a narrow space between cells. A teletext emulator could interpret the control character U+001A ("separated graphics") to display space between cells, or U+0019 ("contiguous graphics") to revert to the default, joined appearance (Figure 13).

Four of the 64 sextant block characters were unified with existing characters: the left and right half blocks and full block were unified with the visually identical U+258C, U+2590, and U+2588, while the empty block can be mapped to an existing space character with suitable properties, such as U+00A0 NO-BREAK SPACE.

Other line-drawing and partial-block characters proposed in this document were determined not to be unifiable with existing characters. For example, the horizontal one-eighth blocks are similar in nature to the horizontal scan line characters at U+23BA through U+23BD and U+2500, but are defined strictly in terms of an 8-row cell, just as the horizontal scan lines are defined in terms of a 9-row cell. In a similar way, and additionally because of source separation, the two 4 × 4 checkerboards from PETSCII could not be unified with U+2592 MEDIUM SHADE or with the proposed U+1FBA0 INVERSE MEDIUM SHADE. New semigraphics characters proposed here are intended to "fit together" visually, the same way the existing ones do.

Some of the graphic characters are intended to be used together, to represent line-drawing images that would not fit within a single character block. Examples include LEFT, MIDDLE, and RIGHT THIRD WHITE RIGHT POINTING INDEX from the TRS-80 Model III and Model 4, and LEFT and RIGHT HALF RUNNING MAN from MouseText on the Apple IIc. These are analogous to U+2320 TOP HALF INTEGRAL and U+2321 BOTTOM HALF INTEGRAL, which, like the present characters, were encoded for compatibility.

**6. BORDER-COLOURED FULL BLOCK.** Microcomputers typically displayed video output on a television instead of a monitor, and usually displayed a visible border around the text or graphics content. Because this border was often prominent, many microcomputers defined a separate "border color" in addition to foreground and background colors. The TI-99/4A, uniquely, had a text character that displayed as a full block in the same color as the border (Figure 5), called the *edge character* in Texas Instruments documentation; U+1FBAF BORDER-COLOURED FULL BLOCK is proposed as the functional equivalent of this character.

**7. Seven-segment digits.** The character set for Atari 16-bit machines (ST and successors) defined clones of the ASCII digits 0 through 9, styled as upright (i.e. not oblique) seven-segment digits, in the code space below 0x20. These styled digits were particularly popular in Atari ST applications, where they were used in separate domains from regular ASCII digits, such as game scores. Representatives of the Atari ST user community have specifically requested these characters. They are proposed here at code points U+1FBF0 through U+1FBF9.

**8. Characters not proposed.** Not all characters identified in the target platforms were deemed suitable for encoding. For example, the character set for Atari 16-bit machines included two characters for the left and right halves of the Atari logo, and four which could be arranged to form an image of the fictional character J.R. "Bob" Dobbs (see Wikipedia article). Both of these symbols, like the existing Apple logo, were determined to be IP-encumbered and thus are not proposed here.

Glyphs from lesser-used platforms that the group observed but could not identify are also not proposed, as described above.

Characters that could not be attested in any of the target platforms are not proposed. One code point, U+1FBA3, was left unassigned in this proposal as a placeholder for the as-yet unattested *LEFT HALF BLOCK AND RIGHT HALF INVERSE MEDIUM SHADE, which would be the reverse-video equivalent of U+1FB9D RIGHT HALF MEDIUM SHADE from the Aquarius.

"Reverse video" or "inverse video" characters, which were present on nearly all microcomputers of the 1970s and 1980s and often served the same purpose that bold or italic characters serve today, have been determined to be out of scope for the UCS and are not proposed here. In a previous version of this proposal (L2/17-435), they were proposed as variation sequences. The ISO 6429 display sequences **SGR 7** ("negative image") and **SGR 0** ("default rendition") are suggested as a higher-level protocol to achieve this effect.

Control characters from microcomputer platforms and teletext were considered, but also determined to be out of scope for the UCS. These characters were located in what would today be considered the C0 control range (0x00–0x1F) or the C1 control range (0x7F–0x9F). Processes that need to interchange these codes should simply interchange the binary C0 or C1 value, extended to the UCS code space but without further mapping. Emulators should treat these control codes as appropriate for the targeted environment.

**9. Character names.** At least since the 1970s, international SDOs such as ECMA and national bodies such as ANSI and BSI have assigned names to the elements of coded character sets. By contrast, vendors of microcomputers, and even the developers of the teletext standard, tended to provide at best a code chart or image of a screen showing the character set, usually without names. We have attempted to invent names for these characters that are meaningful, unique, and conformant to WG2 and UTC guidelines.

**10. Ordering and code point assignment.** The proposed characters are presented roughly in groups: block sextants are together, followed by other mosaic graphics, and so forth. Although the exact order of these characters within their groups is not an overriding concern, it seems reasonable that the groups should be kept together.

All characters (with the exception of two arrows which seemed to fit logically within an existing block) are shown here with a suggested code point in a new block (1FB00..1FBFF) that is unassigned and adjacent to existing symbol blocks, according to the "Roadmap to the SMP," revision 11.0.0. A placeholder block name, "Graphics for Legacy Computing," is listed in the summary form. However, it is understood that final assignment of blocks, code points, and block and character names is completely at the discretion of UTC and/or WG2.

**11. Implementation.** To assist implementers of emulators and conversion tools with the variety of mechanisms discussed in this proposal—existing and new block graphics characters, control codes, ISO 6429 sequences for reverse video, and so forth—the group has developed an extensive set of mapping tables, providing suggested mappings from the legacy character sets to the UCS. These mapping tables are attached to the PDF version of this document. The group is also drafting a Unicode Technical Note to explain the mechanisms and recommended techniques for working with them.

## 12. Unicode character properties.

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2B96;ARROW POINTING UPWARDS THEN NORTH WEST;So;0;ON;;;;;N;;;;;
2B97;ARROW POINTING RIGHTWARDS THEN CURVING SOUTH WEST;So;0;ON;;;;;N;;;;;
1FB00;BLOCK SEXTANT-1;So;0;ON;;;;;N;;;;;
1FB01;BLOCK SEXTANT-2;So;0;ON;;;;;N;;;;;
1FB02;BLOCK SEXTANT-12;So;0;ON;;;;;N;;;;;
1FB03;BLOCK SEXTANT-3;So;0;ON;;;;;N;;;;;
1FB04;BLOCK SEXTANT-13;So;0;ON;;;;;N;;;;;
1FB05;BLOCK SEXTANT-23;So;0;ON;;;;;N;;;;;
1FB06;BLOCK SEXTANT-123;So;0;ON;;;;;N;;;;;
1FB07;BLOCK SEXTANT-4;So;0;ON;;;;;N;;;;;
1FB08;BLOCK SEXTANT-14;So;0;ON;;;;;N;;;;;
1FB09;BLOCK SEXTANT-24;So;0;ON;;;;;N;;;;;
1FB0A;BLOCK SEXTANT-124;So;0;ON;;;;;N;;;;;
1FB0B;BLOCK SEXTANT-34;So;0;ON;;;;;N;;;;;
1FB0C;BLOCK SEXTANT-134;So;0;ON;;;;;N;;;;;
1FB0D;BLOCK SEXTANT-234;So;0;ON;;;;;N;;;;;
1FB0E;BLOCK SEXTANT-1234;So;0;ON;;;;;N;;;;;
1FB0F;BLOCK SEXTANT-5;So;0;ON;;;;;N;;;;;
1FB10;BLOCK SEXTANT-15;So;0;ON;;;;;N;;;;;
1FB11;BLOCK SEXTANT-25;So;0;ON;;;;;N;;;;;
1FB12;BLOCK SEXTANT-125;So;0;ON;;;;;N;;;;;
1FB13;BLOCK SEXTANT-35;So;0;ON;;;;;N;;;;;
1FB14;BLOCK SEXTANT-235;So;0;ON;;;;;N;;;;;
1FB15;BLOCK SEXTANT-1235;So;0;ON;;;;;N;;;;;
1FB16;BLOCK SEXTANT-45;So;0;ON;;;;;N;;;;;
1FB17;BLOCK SEXTANT-145;So;0;ON;;;;;N;;;;;
1FB18;BLOCK SEXTANT-245;So;0;ON;;;;;N;;;;;
1FB19;BLOCK SEXTANT-1245;So;0;ON;;;;;N;;;;;
1FB1A;BLOCK SEXTANT-345;So;0;ON;;;;;N;;;;;
1FB1B;BLOCK SEXTANT-1345;So;0;ON;;;;;N;;;;;
1FB1C;BLOCK SEXTANT-2345;So;0;ON;;;;;N;;;;;
1FB1D;BLOCK SEXTANT-12345;So;0;ON;;;;;N;;;;;
1FB1E;BLOCK SEXTANT-6;So;0;ON;;;;;N;;;;;
1FB1F;BLOCK SEXTANT-16;So;0;ON;;;;;N;;;;;
1FB20;BLOCK SEXTANT-26;So;0;ON;;;;;N;;;;;
1FB21;BLOCK SEXTANT-126;So;0;ON;;;;;N;;;;;
1FB22;BLOCK SEXTANT-36;So;0;ON;;;;;N;;;;;
1FB23;BLOCK SEXTANT-136;So;0;ON;;;;;N;;;;;
1FB24;BLOCK SEXTANT-236;So;0;ON;;;;;N;;;;;
1FB25;BLOCK SEXTANT-1236;So;0;ON;;;;;N;;;;;
1FB26;BLOCK SEXTANT-46;So;0;ON;;;;;N;;;;;
1FB27;BLOCK SEXTANT-146;So;0;ON;;;;;N;;;;;
1FB28;BLOCK SEXTANT-1246;So;0;ON;;;;;N;;;;;
1FB29;BLOCK SEXTANT-346;So;0;ON;;;;;N;;;;;
1FB2A;BLOCK SEXTANT-1346;So;0;ON;;;;;N;;;;;
1FB2B;BLOCK SEXTANT-2346;So;0;ON;;;;;N;;;;;
1FB2C;BLOCK SEXTANT-12346;So;0;ON;;;;;N;;;;;
1FB2D;BLOCK SEXTANT-56;So;0;ON;;;;;N;;;;;
1FB2E;BLOCK SEXTANT-156;So;0;ON;;;;;N;;;;;
1FB2F;BLOCK SEXTANT-256;So;0;ON;;;;;N;;;;;
1FB30;BLOCK SEXTANT-1256;So;0;ON;;;;;N;;;;;
1FB31;BLOCK SEXTANT-356;So;0;ON;;;;;N;;;;;
1FB32;BLOCK SEXTANT-1356;So;0;ON;;;;;N;;;;;
1FB33;BLOCK SEXTANT-2356;So;0;ON;;;;;N;;;;;
1FB34;BLOCK SEXTANT-12356;So;0;ON;;;;;N;;;;;
1FB35;BLOCK SEXTANT-456;So;0;ON;;;;;N;;;;;
1FB36;BLOCK SEXTANT-1456;So;0;ON;;;;;N;;;;;
1FB37;BLOCK SEXTANT-2456;So;0;ON;;;;;N;;;;;
1FB38;BLOCK SEXTANT-12456;So;0;ON;;;;;N;;;;;
1FB39;BLOCK SEXTANT-3456;So;0;ON;;;;;N;;;;;
1FB3A;BLOCK SEXTANT-13456;So;0;ON;;;;;N;;;;;
1FB3B;BLOCK SEXTANT-23456;So;0;ON;;;;;N;;;;;
1FB3C;LOWER LEFT BLOCK DIAGONAL LOWER MIDDLE LEFT TO LOWER CENTRE;So;0;ON;;;;;N;;;;;
1FB3D;LOWER LEFT BLOCK DIAGONAL LOWER MIDDLE LEFT TO LOWER RIGHT;So;0;ON;;;;;N;;;;;
1FB3E;LOWER LEFT BLOCK DIAGONAL UPPER MIDDLE LEFT TO LOWER CENTRE;So;0;ON;;;;;N;;;;;
1FB3F;LOWER LEFT BLOCK DIAGONAL UPPER MIDDLE LEFT TO LOWER RIGHT;So;0;ON;;;;;N;;;;;
1FB40;LOWER LEFT BLOCK DIAGONAL UPPER LEFT TO LOWER CENTRE;So;0;ON;;;;;N;;;;;
1FB41;LOWER RIGHT BLOCK DIAGONAL UPPER MIDDLE LEFT TO UPPER CENTRE;So;0;ON;;;;;N;;;;;
1FB42;LOWER RIGHT BLOCK DIAGONAL UPPER MIDDLE LEFT TO UPPER RIGHT;So;0;ON;;;;;N;;;;;
1FB43;LOWER RIGHT BLOCK DIAGONAL LOWER MIDDLE LEFT TO UPPER CENTRE;So;0;ON;;;;;N;;;;;
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1FB44;LOWER RIGHT BLOCK DIAGONAL LOWER MIDDLE LEFT TO UPPER RIGHT;So;0;ON;;;;;N;;;;;
1FB45;LOWER RIGHT BLOCK DIAGONAL LOWER LEFT TO UPPER CENTRE;So;0;ON;;;;;N;;;;;
1FB46;LOWER RIGHT BLOCK DIAGONAL LOWER MIDDLE LEFT TO UPPER MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FB47;LOWER RIGHT BLOCK DIAGONAL LOWER CENTRE TO LOWER MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FB48;LOWER RIGHT BLOCK DIAGONAL LOWER LEFT TO LOWER MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FB49;LOWER RIGHT BLOCK DIAGONAL LOWER CENTRE TO UPPER MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FB4A;LOWER RIGHT BLOCK DIAGONAL LOWER LEFT TO UPPER MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FB4B;LOWER RIGHT BLOCK DIAGONAL LOWER CENTRE TO UPPER RIGHT;So;0;ON;;;;;N;;;;;
1FB4C;LOWER LEFT BLOCK DIAGONAL UPPER CENTRE TO UPPER MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FB4D;LOWER LEFT BLOCK DIAGONAL UPPER LEFT TO UPPER MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FB4E;LOWER LEFT BLOCK DIAGONAL UPPER CENTRE TO LOWER MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FB4F;LOWER LEFT BLOCK DIAGONAL UPPER LEFT TO LOWER MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FB50;LOWER LEFT BLOCK DIAGONAL UPPER CENTRE TO LOWER RIGHT;So;0;ON;;;;;N;;;;;
1FB51;LOWER LEFT BLOCK DIAGONAL UPPER MIDDLE LEFT TO LOWER MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FB52;UPPER RIGHT BLOCK DIAGONAL LOWER MIDDLE LEFT TO LOWER CENTRE;So;0;ON;;;;;N;;;;;
1FB53;UPPER RIGHT BLOCK DIAGONAL LOWER MIDDLE LEFT TO LOWER RIGHT;So;0;ON;;;;;N;;;;;
1FB54;UPPER RIGHT BLOCK DIAGONAL UPPER MIDDLE LEFT TO LOWER CENTRE;So;0;ON;;;;;N;;;;;
1FB55;UPPER RIGHT BLOCK DIAGONAL UPPER MIDDLE LEFT TO LOWER RIGHT;So;0;ON;;;;;N;;;;;
1FB56;UPPER RIGHT BLOCK DIAGONAL UPPER LEFT TO LOWER CENTRE;So;0;ON;;;;;N;;;;;
1FB57;UPPER LEFT BLOCK DIAGONAL UPPER MIDDLE LEFT TO UPPER CENTRE;So;0;ON;;;;;N;;;;;
1FB58;UPPER LEFT BLOCK DIAGONAL UPPER MIDDLE LEFT TO UPPER RIGHT;So;0;ON;;;;;N;;;;;
1FB59;UPPER LEFT BLOCK DIAGONAL LOWER MIDDLE LEFT TO UPPER CENTRE;So;0;ON;;;;;N;;;;;
1FB5A;UPPER LEFT BLOCK DIAGONAL LOWER MIDDLE LEFT TO UPPER RIGHT;So;0;ON;;;;;N;;;;;
1FB5B;UPPER LEFT BLOCK DIAGONAL LOWER LEFT TO UPPER CENTRE;So;0;ON;;;;;N;;;;;
1FB5C;UPPER LEFT BLOCK DIAGONAL LOWER MIDDLE LEFT TO UPPER MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FB5D;UPPER LEFT BLOCK DIAGONAL LOWER CENTRE TO LOWER MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FB5E;UPPER LEFT BLOCK DIAGONAL LOWER LEFT TO LOWER MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FB5F;UPPER LEFT BLOCK DIAGONAL LOWER CENTRE TO UPPER MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FB60;UPPER LEFT BLOCK DIAGONAL LOWER LEFT TO UPPER MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FB61;UPPER LEFT BLOCK DIAGONAL LOWER CENTRE TO UPPER RIGHT;So;0;ON;;;;;N;;;;;
1FB62;UPPER RIGHT BLOCK DIAGONAL UPPER CENTRE TO UPPER MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FB63;UPPER RIGHT BLOCK DIAGONAL UPPER LEFT TO UPPER MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FB64;UPPER RIGHT BLOCK DIAGONAL UPPER CENTRE TO LOWER MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FB65;UPPER RIGHT BLOCK DIAGONAL UPPER LEFT TO LOWER MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FB66;UPPER RIGHT BLOCK DIAGONAL UPPER CENTRE TO LOWER RIGHT;So;0;ON;;;;;N;;;;;
1FB67;UPPER RIGHT BLOCK DIAGONAL UPPER MIDDLE LEFT TO LOWER MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FB68;UPPER AND RIGHT AND LOWER TRIANGULAR THREE QUARTERS BLOCK;So;0;ON;;;;;N;;;;;
1FB69;LEFT AND LOWER AND RIGHT TRIANGULAR THREE QUARTERS BLOCK;So;0;ON;;;;;N;;;;;
1FB6A;UPPER AND LEFT AND LOWER TRIANGULAR THREE QUARTERS BLOCK;So;0;ON;;;;;N;;;;;
1FB6B;LEFT AND UPPER AND RIGHT TRIANGULAR THREE QUARTERS BLOCK;So;0;ON;;;;;N;;;;;
1FB6C;LEFT TRIANGULAR ONE QUARTER BLOCK;So;0;ON;;;;;N;;;;;
1FB6D;UPPER TRIANGULAR ONE QUARTER BLOCK;So;0;ON;;;;;N;;;;;
1FB6E;RIGHT TRIANGULAR ONE QUARTER BLOCK;So;0;ON;;;;;N;;;;;
1FB6F;LOWER TRIANGULAR ONE QUARTER BLOCK;So;0;ON;;;;;N;;;;;
1FB70;VERTICAL ONE EIGHTH BLOCK-2;So;0;ON;;;;;N;;;;;
1FB71;VERTICAL ONE EIGHTH BLOCK-3;So;0;ON;;;;;N;;;;;
1FB72;VERTICAL ONE EIGHTH BLOCK-4;So;0;ON;;;;;N;;;;;
1FB73;VERTICAL ONE EIGHTH BLOCK-5;So;0;ON;;;;;N;;;;;
1FB74;VERTICAL ONE EIGHTH BLOCK-6;So;0;ON;;;;;N;;;;;
1FB75;VERTICAL ONE EIGHTH BLOCK-7;So;0;ON;;;;;N;;;;;
1FB76;HORIZONTAL ONE EIGHTH BLOCK-2;So;0;ON;;;;;N;;;;;
1FB77;HORIZONTAL ONE EIGHTH BLOCK-3;So;0;ON;;;;;N;;;;;
1FB78;HORIZONTAL ONE EIGHTH BLOCK-4;So;0;ON;;;;;N;;;;;
1FB79;HORIZONTAL ONE EIGHTH BLOCK-5;So;0;ON;;;;;N;;;;;
1FB7A;HORIZONTAL ONE EIGHTH BLOCK-6;So;0;ON;;;;;N;;;;;
1FB7B;HORIZONTAL ONE EIGHTH BLOCK-7;So;0;ON;;;;;N;;;;;
1FB7C;LEFT AND LOWER ONE EIGHTH BLOCK;So;0;ON;;;;;N;;;;;
1FB7D;LEFT AND UPPER ONE EIGHTH BLOCK;So;0;ON;;;;;N;;;;;
1FB7E;RIGHT AND UPPER ONE EIGHTH BLOCK;So;0;ON;;;;;N;;;;;
1FB7F;RIGHT AND LOWER ONE EIGHTH BLOCK;So;0;ON;;;;;N;;;;;
1FB80;UPPER AND LOWER ONE EIGHTH BLOCK;So;0;ON;;;;;N;;;;;
1FB81;HORIZONTAL ONE EIGHTH BLOCK-1358;So;0;ON;;;;;N;;;;;
1FB82;UPPER ONE QUARTER BLOCK;So;0;ON;;;;;N;;;;;
1FB83;UPPER THREE EIGHTHS BLOCK;So;0;ON;;;;;N;;;;;
1FB84;UPPER FIVE EIGHTHS BLOCK;So;0;ON;;;;;N;;;;;
1FB85;UPPER THREE QUARTERS BLOCK;So;0;ON;;;;;N;;;;;
1FB86;UPPER SEVEN EIGHTHS BLOCK;So;0;ON;;;;;N;;;;;
1FB87;RIGHT ONE QUARTER BLOCK;So;0;ON;;;;;N;;;;;
1FB88;RIGHT THREE EIGHTHS BLOCK;So;0;ON;;;;;N;;;;;
1FB89;RIGHT FIVE EIGHTHS BLOCK;So;0;ON;;;;;N;;;;;
1FB8A;RIGHT THREE QUARTERS BLOCK;So;0;ON;;;;;N;;;;;
1FB8B;RIGHT SEVEN EIGHTHS BLOCK;So;0;ON;;;;;N;;;;;
1FB8C;UPPER RIGHT SEVEN EIGHTHS BLOCK;So;0;ON;;;;;N;;;;;
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1FB8D;LOWER RIGHT SEVEN EIGHTHS BLOCK;So;0;ON;;;;;N;;;;;
1FB8E;LOWER LEFT SEVEN EIGHTHS BLOCK;So;0;ON;;;;;N;;;;;
1FB8F;UPPER LEFT SEVEN EIGHTHS BLOCK;So;0;ON;;;;;N;;;;;
1FB90;LEFT ONE EIGHTH BLOCK AND RIGHT THREE QUARTERS BLOCK;So;0;ON;;;;;N;;;;;
1FB91;LEFT ONE QUARTER BLOCK AND RIGHT FIVE EIGHTHS BLOCK;So;0;ON;;;;;N;;;;;
1FB92;LEFT THREE EIGHTHS BLOCK AND RIGHT HALF BLOCK;So;0;ON;;;;;N;;;;;
1FB93;LEFT HALF BLOCK AND RIGHT THREE EIGHTHS BLOCK;So;0;ON;;;;;N;;;;;
1FB94;LEFT FIVE EIGHTHS BLOCK AND RIGHT ONE QUARTER BLOCK;So;0;ON;;;;;N;;;;;
1FB95;LEFT THREE QUARTERS BLOCK AND RIGHT ONE EIGHTH BLOCK;So;0;ON;;;;;N;;;;;
1FB96;UPPER ONE EIGHTH BLOCK AND LOWER THREE QUARTERS BLOCK;So;0;ON;;;;;N;;;;;
1FB97;UPPER ONE QUARTER BLOCK AND LOWER FIVE EIGHTHS BLOCK;So;0;ON;;;;;N;;;;;
1FB98;UPPER THREE EIGHTHS BLOCK AND LOWER HALF BLOCK;So;0;ON;;;;;N;;;;;
1FB99;UPPER HALF BLOCK AND LOWER THREE EIGHTHS BLOCK;So;0;ON;;;;;N;;;;;
1FB9A;UPPER FIVE EIGHTHS BLOCK AND LOWER ONE QUARTER BLOCK;So;0;ON;;;;;N;;;;;
1FB9B;UPPER THREE QUARTERS BLOCK AND LOWER ONE EIGHTH BLOCK;So;0;ON;;;;;N;;;;;
1FB9C;LEFT HALF MEDIUM SHADE;So;0;ON;;;;;N;;;;;
1FB9D;RIGHT HALF MEDIUM SHADE;So;0;ON;;;;;N;;;;;
1FB9E;UPPER HALF MEDIUM SHADE;So;0;ON;;;;;N;;;;;
1FB9F;LOWER HALF MEDIUM SHADE;So;0;ON;;;;;N;;;;;
1FBA0;INVERSE MEDIUM SHADE;So;0;ON;;;;;N;;;;;
1FBA1;UPPER HALF BLOCK AND LOWER HALF INVERSE MEDIUM SHADE;So;0;ON;;;;;N;;;;;
1FBA2;UPPER HALF INVERSE MEDIUM SHADE AND LOWER HALF BLOCK;So;0;ON;;;;;N;;;;;
1FBA4;LEFT HALF INVERSE MEDIUM SHADE AND RIGHT HALF BLOCK;So;0;ON;;;;;N;;;;;
1FBA5;FOUR-BY-FOUR CHECKER BOARD;So;0;ON;;;;;N;;;;;
1FBA6;REVERSE FOUR-BY-FOUR CHECKER BOARD;So;0;ON;;;;;N;;;;;
1FBA7;UPPER LEFT TO LOWER RIGHT FILL;So;0;ON;;;;;N;;;;;
1FBA8;INVERSE UPPER LEFT TO LOWER RIGHT FILL;So;0;ON;;;;;N;;;;;
1FBA9;UPPER RIGHT TO LOWER LEFT FILL;So;0;ON;;;;;N;;;;;
1FBAA;INVERSE UPPER RIGHT TO LOWER LEFT FILL;So;0;ON;;;;;N;;;;;
1FBAB;INVERSE CHECK MARK;So;0;ON;;;;;N;;;;;
1FBAC;INVERSE LIGHT DIAGONAL CROSS;So;0;ON;;;;;N;;;;;
1FBAD;INVERSE LIGHT DIAGONAL MIDDLE RIGHT TO LOWER CENTRE;So;0;ON;;;;;N;;;;;
1FBAE;INVERSE LIGHT DIAGONAL DIAMOND;So;0;ON;;;;;N;;;;;
1FBAF;BORDER-COLOURED FULL BLOCK;So;0;ON;;;;;N;;;;;
1FBB0;BOX DRAWINGS LIGHT DIAGONAL UPPER CENTRE TO MIDDLE LEFT TO LOWER CENTRE;So;0;ON;;;;;N;;;;;
1FBB1;BOX DRAWINGS LIGHT DIAGONAL UPPER CENTRE TO MIDDLE RIGHT TO LOWER CENTRE;So;0;ON;;;;;N;;;;;
1FBB2;BOX DRAWINGS LIGHT DIAGONAL MIDDLE LEFT TO LOWER CENTRE TO MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FBB3;BOX DRAWINGS LIGHT DIAGONAL MIDDLE LEFT TO UPPER CENTRE TO MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FBB4;BOX DRAWINGS LIGHT DIAGONAL UPPER CENTRE TO MIDDLE LEFT;So;0;ON;;;;;N;;;;;
1FBB5;BOX DRAWINGS LIGHT DIAGONAL UPPER CENTRE TO MIDDLE RIGHT;So;0;ON;;;;;N;;;;;
1FBB6;BOX DRAWINGS LIGHT DIAGONAL MIDDLE LEFT TO LOWER CENTRE;So;0;ON;;;;;N;;;;;
1FBB7;BOX DRAWINGS LIGHT DIAGONAL MIDDLE RIGHT TO LOWER CENTRE;So;0;ON;;;;;N;;;;;
1FBB8;BOX DRAWINGS LIGHT DIAGONAL UPPER CENTRE TO MIDDLE LEFT AND MIDDLE RIGHT TO LOWER
    CENTRE;So;0;ON;;;;;N;;;;;
1FBB9;BOX DRAWINGS LIGHT DIAGONAL UPPER CENTRE TO MIDDLE RIGHT AND MIDDLE LEFT TO LOWER
    CENTRE;So;0;ON;;;;;N;;;;;
1FBBA;BOX DRAWINGS LIGHT DIAGONAL DIAMOND;So;0;ON;;;;;N;;;;;
1FBBB;BOX DRAWINGS LIGHT DIAGONAL UPPER CENTRE TO MIDDLE RIGHT TO LOWER CENTRE TO MIDDLE
    LEFT;So;0;ON;;;;;N;;;;;
1FBBC;BOX DRAWINGS LIGHT DIAGONAL UPPER CENTRE TO MIDDLE LEFT TO LOWER CENTRE TO MIDDLE
    RIGHT;So;0;ON;;;;;N;;;;;
1FBBD;BOX DRAWINGS LIGHT DIAGONAL MIDDLE LEFT TO UPPER CENTRE TO MIDDLE RIGHT TO LOWER
    CENTRE;So;0;ON;;;;;N;;;;;
1FBBE;BOX DRAWINGS LIGHT DIAGONAL MIDDLE RIGHT TO UPPER CENTRE TO MIDDLE LEFT TO LOWER
    CENTRE;So;0;ON;;;;;N;;;;;
1FBBF;BOX DRAWINGS LIGHT HORIZONTAL WITH VERTICAL STROKE;So;0;ON;;;;;N;;;;;
1FBC0;ARROWHEAD-SHAPED POINTER;So;0;ON;;;;;N;;;;;
1FBC1;LEFT HALF RUNNING MAN;So;0;ON;;;;;N;;;;;
1FBC2;RIGHT HALF RUNNING MAN;So;0;ON;;;;;N;;;;;
1FBC3;INVERSE DOWNWARDS ARROW WITH TIP LEFTWARDS;So;0;ON;;;;;N;;;;;
1FBC4;LEFTWARDS ARROW AND UPPER AND LOWER ONE EIGHTH BLOCK;So;0;ON;;;;;N;;;;;
1FBC5;RIGHTWARDS ARROW AND UPPER AND LOWER ONE EIGHTH BLOCK;So;0;ON;;;;;N;;;;;
1FBC6;DOWNWARDS ARROW AND RIGHT ONE EIGHTH BLOCK;So;0;ON;;;;;N;;;;;
1FBC7;UPWARDS ARROW AND RIGHT ONE EIGHTH BLOCK;So;0;ON;;;;;N;;;;;
1FBC8;LEFT HALF FOLDER;So;0;ON;;;;;N;;;;;
1FBC9;RIGHT HALF FOLDER;So;0;ON;;;;;N;;;;;
1FBCA;VOIDED GREEK CROSS;So;0;ON;;;;;N;;;;;
1FBCB;RIGHT OPEN SQUARED DOT;So;0;ON;;;;;N;;;;;
1FBCC;TWO PAIRS OF DIAGONAL LINES CROSSING;So;0;ON;;;;;N;;;;;
1FBCD;LEFT THIRD WHITE RIGHT POINTING INDEX;So;0;ON;;;;;N;;;;;
1FBCE;MIDDLE THIRD WHITE RIGHT POINTING INDEX;So;0;ON;;;;;N;;;;;
1FBCF;RIGHT THIRD WHITE RIGHT POINTING INDEX;So;0;ON;;;;;N;;;;;
1FBD0;NEGATIVE SQUARED QUESTION MARK;So;0;ON;;;;;N;;;;;
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```
1FBD1;STICK FIGURE;So;0;ON;;;;;N;;;;;
1FBD2;STICK FIGURE WITH ARMS RAISED;So;0;ON;;;;;N;;;;;
1FBD3;STICK FIGURE LEANING LEFT;So;0;ON;;;;;N;;;;;
1FBD4;STICK FIGURE LEANING RIGHT;So;0;ON;;;;;N;;;;;
1FBD5;STICK FIGURE WITH DRESS;So;0;ON;;;;;N;;;;;
1FBD6;WHITE UP-POINTING CHEVRON;So;0;ON;;;;;N;;;;;
1FBD7;HEAVY HORIZONTAL FILL;So;0;ON;;;;;N;;;;;
1FBD8;INVERSE HEAVY HORIZONTAL FILL;So;0;ON;;;;;N;;;;;
1FBD9;WHITE HEAVY SALTIRE WITH ROUNDED CORNERS;So;0;ON;;;;;N;;;;;
1FBDA;UPPER AND LOWER TRIANGULAR HALF BLOCK;So;0;ON;;;;;N;;;;;
1FBDB;LEFT AND RIGHT TRIANGULAR HALF BLOCK;So;0;ON;;;;;N;;;;;
1FBDC;UPPER LEFT TRIANGULAR MEDIUM SHADE;So;0;ON;;;;;N;;;;;
1FBDD;UPPER RIGHT TRIANGULAR MEDIUM SHADE;So;0;ON;;;;;N;;;;;
1FBDE;LOWER RIGHT TRIANGULAR MEDIUM SHADE;So;0;ON;;;;;N;;;;;
1FBDF;LOWER LEFT TRIANGULAR MEDIUM SHADE;So;0;ON;;;;;N;;;;;
1FBF0;SEGMENTED DIGIT ZERO;Nd;0;EN;<font> 0030;0;0;0;N;;;;;
1FBF1;SEGMENTED DIGIT ONE;Nd;0;EN;<font> 0031;1;1;1;N;;;;;
1FBF2;SEGMENTED DIGIT TWO;Nd;0;EN;<font> 0032;2;2;2;N;;;;;
1FBF3;SEGMENTED DIGIT THREE;Nd;0;EN;<font> 0033;3;3;3;N;;;;;
1FBF4;SEGMENTED DIGIT FOUR;Nd;0;EN;<font> 0034;4;4;4;N;;;;;
1FBF5;SEGMENTED DIGIT FIVE;Nd;0;EN;<font> 0035;5;5;5;N;;;;;
1FBF6;SEGMENTED DIGIT SIX;Nd;0;EN;<font> 0036;6;6;6;N;;;;;
1FBF7;SEGMENTED DIGIT SEVEN;Nd;0;EN;<font> 0037;7;7;7;N;;;;;
1FBF8;SEGMENTED DIGIT EIGHT;Nd;0;EN;<font> 0038;8;8;8;N;;;;;
1FBF9;SEGMENTED DIGIT NINE;Nd;0;EN;<font> 0039;9;9;9;N;;;;;
```

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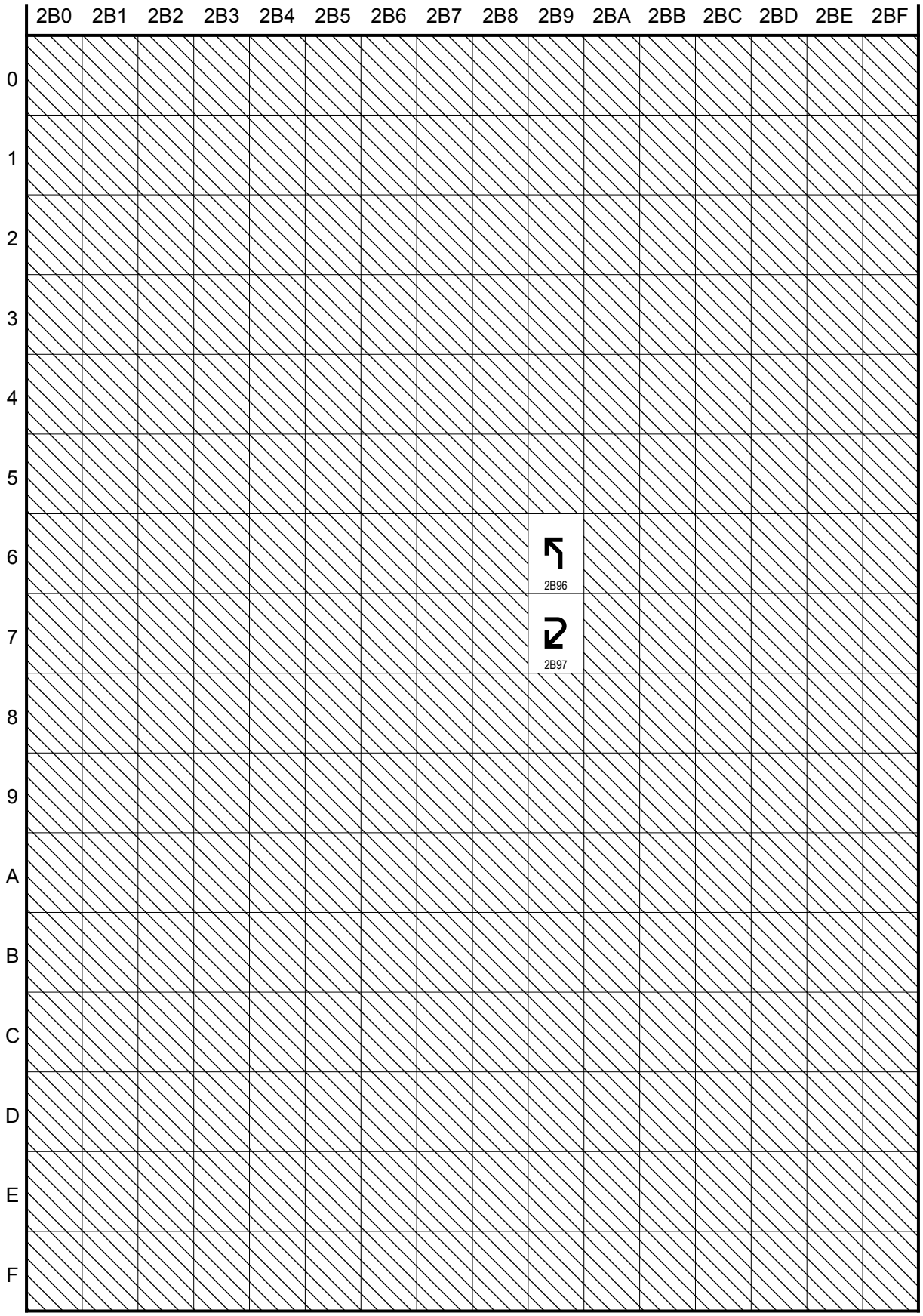
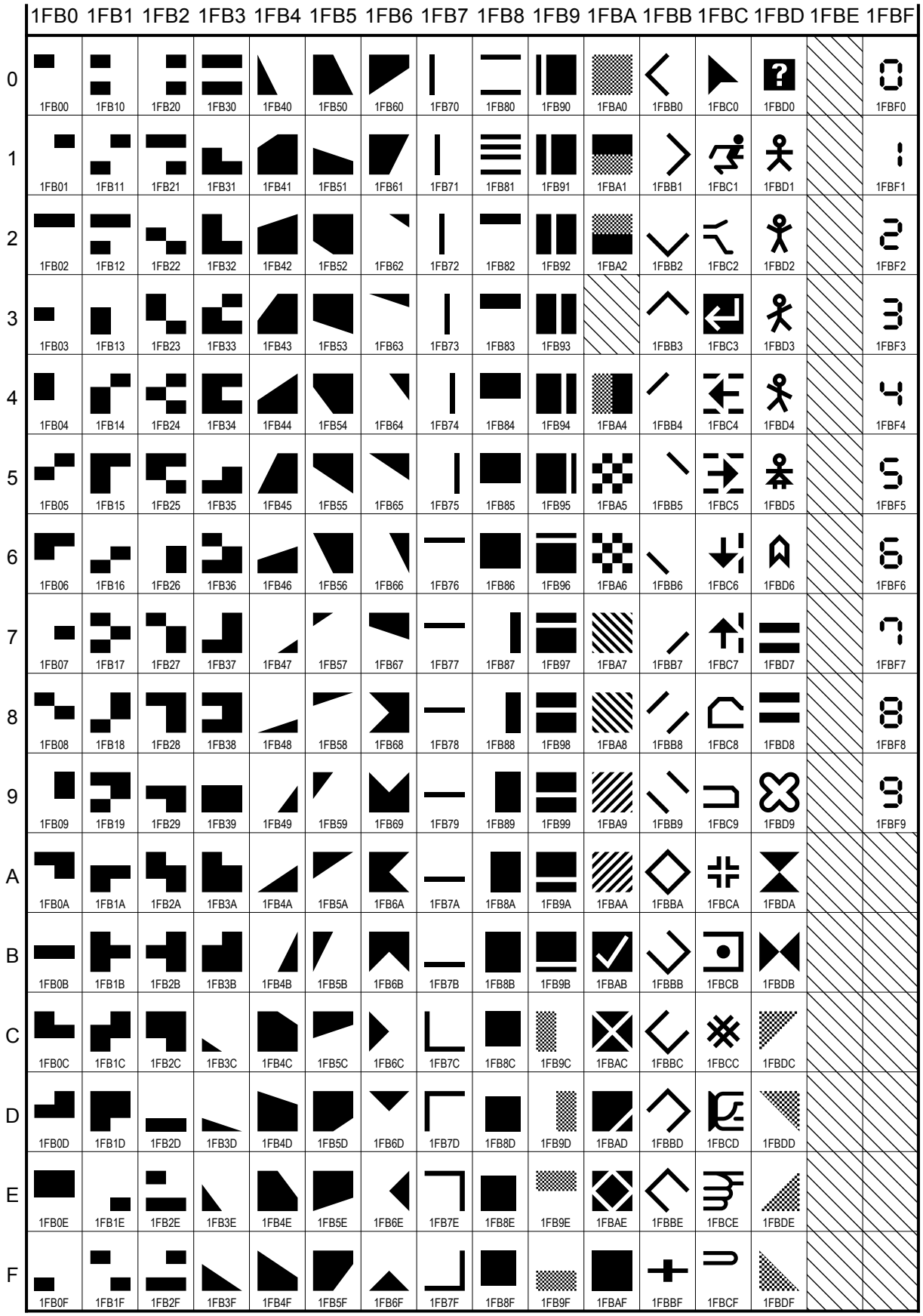

2B0 2B1 2B2 2B3 2B4 2B5 2B6 2B7 2B8 2B9 2BA 2BB 2BC 2BD 2BE 2BF
0
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
2B96
2B97

## Arrows for legacy computing

2B96 ↰ ARROW POINTING UPWARDS THEN NORTH WEST

2B97 ↲ ARROW POINTING RIGHTWARDS THEN CURVING SOUTH WEST


1FB0 1FB1 1FB2 1FB3 1FB4 1FB5 1FB6 1FB7 1FB8 1FB9 1FBA 1FBB 1FBC 1FBD 1FBE 1FBF
0 1FB00 1FB10 1FB20 1FB30 1FB40 1FB50 1FB60 1FB70 1FB80 1FB90 1FBA0 1FBB0 1FBC0 1FBD0 1FBF0
1 1FB01 1FB11 1FB21 1FB31 1FB41 1FB51 1FB61 1FB71 1FB81 1FB91 1FBA1 1FBB1 1FBC1 1FBD1 1FBF1
2 1FB02 1FB12 1FB22 1FB32 1FB42 1FB52 1FB62 1FB72 1FB82 1FB92 1FBA2 1FBB2 1FBC2 1FBD2 1FBF2
3 1FB03 1FB13 1FB23 1FB33 1FB43 1FB53 1FB63 1FB73 1FB83 1FB93 1FBB3 1FBC3 1FBD3 1FBF3
4 1FB04 1FB14 1FB24 1FB34 1FB44 1FB54 1FB64 1FB74 1FB84 1FB94 1FBA4 1FBB4 1FBC4 1FBD4 1FBF4
5 1FB05 1FB15 1FB25 1FB35 1FB45 1FB55 1FB65 1FB75 1FB85 1FB95 1FBA5 1FBB5 1FBC5 1FBD5 1FBF5
6 1FB06 1FB16 1FB26 1FB36 1FB46 1FB56 1FB66 1FB76 1FB86 1FB96 1FBA6 1FBB6 1FBC6 1FBD6 1FBF6
7 1FB07 1FB17 1FB27 1FB37 1FB47 1FB57 1FB67 1FB77 1FB87 1FB97 1FBA7 1FBB7 1FBC7 1FBD7 1FBF7
8 1FB08 1FB18 1FB28 1FB38 1FB48 1FB58 1FB68 1FB78 1FB88 1FB98 1FBA8 1FBB8 1FBC8 1FBD8 1FBF8
9 1FB09 1FB19 1FB29 1FB39 1FB49 1FB59 1FB69 1FB79 1FB89 1FB99 1FBA9 1FBB9 1FBC9 1FBD9 1FBF9
A 1FB0A 1FB1A 1FB2A 1FB3A 1FB4A 1FB5A 1FB6A 1FB7A 1FB8A 1FB9A 1FBAA 1FBBA 1FBCA 1FBDA
B 1FB0B 1FB1B 1FB2B 1FB3B 1FB4B 1FB5B 1FB6B 1FB7B 1FB8B 1FB9B 1FBAB 1FBBB 1FBCB 1FBDB
C 1FB0C 1FB1C 1FB2C 1FB3C 1FB4C 1FB5C 1FB6C 1FB7C 1FB8C 1FB9C 1FBAC 1FBBC 1FBCC 1FBDC
D 1FB0D 1FB1D 1FB2D 1FB3D 1FB4D 1FB5D 1FB6D 1FB7D 1FB8D 1FB9D 1FBAD 1FBBD 1FBCD 1FBDD
E 1FB0E 1FB1E 1FB2E 1FB3E 1FB4E 1FB5E 1FB6E 1FB7E 1FB8E 1FB9E 1FBAE 1FBBE 1FBCE 1FBDE
F 1FB0F 1FB1F 1FB2F 1FB3F 1FB4F 1FB5F 1FB6F 1FB7F 1FB8F 1FB9F 1FBAF 1FBBF 1FBCF 1FBDF

## Block mosaic terminal graphic characters

1FB00 BLOCK SEXTANT-1
1FB01 BLOCK SEXTANT-2
1FB02 BLOCK SEXTANT-12
= upper one third block
1FB03 BLOCK SEXTANT-3
1FB04 BLOCK SEXTANT-13
1FB05 BLOCK SEXTANT-23
1FB06 BLOCK SEXTANT-123
1FB07 BLOCK SEXTANT-4
1FB08 BLOCK SEXTANT-14
1FB09 BLOCK SEXTANT-24
1FB0A BLOCK SEXTANT-124
1FB0B BLOCK SEXTANT-34
= middle one third block
1FB0C BLOCK SEXTANT-134
1FB0D BLOCK SEXTANT-234
1FB0E BLOCK SEXTANT-1234
= upper two thirds block
1FB0F BLOCK SEXTANT-5
1FB10 BLOCK SEXTANT-15
1FB11 BLOCK SEXTANT-25
1FB12 BLOCK SEXTANT-125
1FB13 BLOCK SEXTANT-35
1FB14 BLOCK SEXTANT-235
1FB15 BLOCK SEXTANT-1235
1FB16 BLOCK SEXTANT-45
1FB17 BLOCK SEXTANT-145
1FB18 BLOCK SEXTANT-245
1FB19 BLOCK SEXTANT-1245
1FB1A BLOCK SEXTANT-345
1FB1B BLOCK SEXTANT-1345
1FB1C BLOCK SEXTANT-2345
1FB1D BLOCK SEXTANT-12345
1FB1E BLOCK SEXTANT-6
1FB1F BLOCK SEXTANT-16
1FB20 BLOCK SEXTANT-26
1FB21 BLOCK SEXTANT-126
1FB22 BLOCK SEXTANT-36
1FB23 BLOCK SEXTANT-136
1FB24 BLOCK SEXTANT-236
1FB25 BLOCK SEXTANT-1236
1FB26 BLOCK SEXTANT-46
1FB27 BLOCK SEXTANT-146
1FB28 BLOCK SEXTANT-1246
1FB29 BLOCK SEXTANT-346
1FB2A BLOCK SEXTANT-1346
1FB2B BLOCK SEXTANT-2346
1FB2C BLOCK SEXTANT-12346
1FB2D BLOCK SEXTANT-56
= lower one third block
1FB2E BLOCK SEXTANT-156
1FB2F BLOCK SEXTANT-256
1FB30 BLOCK SEXTANT-1256
= upper and lower one third block
1FB31 BLOCK SEXTANT-356
1FB32 BLOCK SEXTANT-1356
1FB33 BLOCK SEXTANT-2356
1FB34 BLOCK SEXTANT-12356
1FB35 BLOCK SEXTANT-456
1FB36 BLOCK SEXTANT-1456
1FB37 BLOCK SEXTANT-2456
1FB38 BLOCK SEXTANT-12456
1FB39 BLOCK SEXTANT-3456
= lower two thirds block
1FB3A BLOCK SEXTANT-13456
1FB3B BLOCK SEXTANT-23456

## Smooth mosaic terminal graphic characters

1FB3C LOWER LEFT BLOCK DIAGONAL LOWER MIDDLE LEFT TO LOWER CENTRE
1FB3D LOWER LEFT BLOCK DIAGONAL LOWER MIDDLE LEFT TO LOWER RIGHT
1FB3E LOWER LEFT BLOCK DIAGONAL UPPER MIDDLE LEFT TO LOWER CENTRE
1FB3F LOWER LEFT BLOCK DIAGONAL UPPER MIDDLE LEFT TO LOWER RIGHT
1FB40 LOWER LEFT BLOCK DIAGONAL UPPER LEFT TO LOWER CENTRE
1FB41 LOWER RIGHT BLOCK DIAGONAL UPPER MIDDLE LEFT TO UPPER CENTRE
1FB42 LOWER RIGHT BLOCK DIAGONAL UPPER MIDDLE LEFT TO UPPER RIGHT
1FB43 LOWER RIGHT BLOCK DIAGONAL LOWER MIDDLE LEFT TO UPPER CENTRE
1FB44 LOWER RIGHT BLOCK DIAGONAL LOWER MIDDLE LEFT TO UPPER RIGHT
1FB45 LOWER RIGHT BLOCK DIAGONAL LOWER LEFT TO UPPER CENTRE
1FB46 LOWER RIGHT BLOCK DIAGONAL LOWER MIDDLE LEFT TO UPPER MIDDLE RIGHT
1FB47 LOWER RIGHT BLOCK DIAGONAL LOWER CENTRE TO LOWER MIDDLE RIGHT
1FB48 LOWER RIGHT BLOCK DIAGONAL LOWER LEFT TO LOWER MIDDLE RIGHT
1FB49 LOWER RIGHT BLOCK DIAGONAL LOWER CENTRE TO UPPER MIDDLE RIGHT
1FB4A LOWER RIGHT BLOCK DIAGONAL LOWER LEFT TO UPPER MIDDLE RIGHT
1FB4B LOWER RIGHT BLOCK DIAGONAL LOWER CENTRE TO UPPER RIGHT
1FB4C LOWER LEFT BLOCK DIAGONAL UPPER CENTRE TO UPPER MIDDLE RIGHT
1FB4D LOWER LEFT BLOCK DIAGONAL UPPER LEFT TO UPPER MIDDLE RIGHT
1FB4E LOWER LEFT BLOCK DIAGONAL UPPER CENTRE TO LOWER MIDDLE RIGHT
1FB4F LOWER LEFT BLOCK DIAGONAL UPPER LEFT TO LOWER MIDDLE RIGHT
1FB50 LOWER LEFT BLOCK DIAGONAL UPPER CENTRE TO LOWER RIGHT
1FB51 LOWER LEFT BLOCK DIAGONAL UPPER MIDDLE LEFT TO LOWER MIDDLE RIGHT
1FB52 UPPER RIGHT BLOCK DIAGONAL LOWER MIDDLE LEFT TO LOWER CENTRE
1FB53 UPPER RIGHT BLOCK DIAGONAL LOWER MIDDLE LEFT TO LOWER RIGHT
1FB54 UPPER RIGHT BLOCK DIAGONAL UPPER MIDDLE LEFT TO LOWER CENTRE
1FB55 UPPER RIGHT BLOCK DIAGONAL UPPER MIDDLE LEFT TO LOWER RIGHT
1FB56 UPPER RIGHT BLOCK DIAGONAL UPPER LEFT TO LOWER CENTRE
1FB57 UPPER LEFT BLOCK DIAGONAL UPPER MIDDLE LEFT TO UPPER CENTRE
1FB58 UPPER LEFT BLOCK DIAGONAL UPPER MIDDLE LEFT TO UPPER RIGHT
1FB59 UPPER LEFT BLOCK DIAGONAL LOWER MIDDLE LEFT TO UPPER CENTRE
1FB5A UPPER LEFT BLOCK DIAGONAL LOWER MIDDLE LEFT TO UPPER RIGHT
1FB5B UPPER LEFT BLOCK DIAGONAL LOWER LEFT TO UPPER CENTRE
1FB5C UPPER LEFT BLOCK DIAGONAL LOWER MIDDLE LEFT TO UPPER MIDDLE RIGHT
1FB5D UPPER LEFT BLOCK DIAGONAL LOWER CENTRE TO LOWER MIDDLE RIGHT
1FB5E UPPER LEFT BLOCK DIAGONAL LOWER LEFT TO LOWER MIDDLE RIGHT

1FB5F UPPER LEFT BLOCK DIAGONAL LOWER CENTRE TO UPPER MIDDLE RIGHT
1FB60 UPPER LEFT BLOCK DIAGONAL LOWER LEFT TO UPPER MIDDLE RIGHT
1FB61 UPPER LEFT BLOCK DIAGONAL LOWER CENTRE TO UPPER RIGHT
1FB62 UPPER RIGHT BLOCK DIAGONAL UPPER CENTRE TO UPPER MIDDLE RIGHT
1FB63 UPPER RIGHT BLOCK DIAGONAL UPPER LEFT TO UPPER MIDDLE RIGHT
1FB64 UPPER RIGHT BLOCK DIAGONAL UPPER CENTRE TO LOWER MIDDLE RIGHT
1FB65 UPPER RIGHT BLOCK DIAGONAL UPPER LEFT TO LOWER MIDDLE RIGHT
1FB66 UPPER RIGHT BLOCK DIAGONAL UPPER CENTRE TO LOWER RIGHT
1FB67 UPPER RIGHT BLOCK DIAGONAL UPPER MIDDLE LEFT TO LOWER MIDDLE RIGHT
1FB68 UPPER AND RIGHT AND LOWER TRIANGULAR THREE QUARTERS BLOCK
1FB69 LEFT AND LOWER AND RIGHT TRIANGULAR THREE QUARTERS BLOCK
1FB6A UPPER AND LEFT AND LOWER TRIANGULAR THREE QUARTERS BLOCK
1FB6B LEFT AND UPPER AND RIGHT TRIANGULAR THREE QUARTERS BLOCK
1FB6C LEFT TRIANGULAR ONE QUARTER BLOCK
1FB6D UPPER TRIANGULAR ONE QUARTER BLOCK
1FB6E RIGHT TRIANGULAR ONE QUARTER BLOCK
1FB6F LOWER TRIANGULAR ONE QUARTER BLOCK

## Block elements

1FB70 VERTICAL ONE EIGHTH BLOCK-2
→ 258F left one eighth block
1FB71 VERTICAL ONE EIGHTH BLOCK-3
1FB72 VERTICAL ONE EIGHTH BLOCK-4
1FB73 VERTICAL ONE EIGHTH BLOCK-5
1FB74 VERTICAL ONE EIGHTH BLOCK-6
1FB75 VERTICAL ONE EIGHTH BLOCK-7
→ 2595 right one eighth block
1FB76 HORIZONTAL ONE EIGHTH BLOCK-2
→ 2594 upper one eighth block
1FB77 HORIZONTAL ONE EIGHTH BLOCK-3
1FB78 HORIZONTAL ONE EIGHTH BLOCK-4
1FB79 HORIZONTAL ONE EIGHTH BLOCK-5
1FB7A HORIZONTAL ONE EIGHTH BLOCK-6
1FB7B HORIZONTAL ONE EIGHTH BLOCK-7
→ 2581 _ lower one eighth block
1FB7C LEFT AND LOWER ONE EIGHTH BLOCK
1FB7D LEFT AND UPPER ONE EIGHTH BLOCK
1FB7E RIGHT AND UPPER ONE EIGHTH BLOCK
1FB7F RIGHT AND LOWER ONE EIGHTH BLOCK
1FB80 UPPER AND LOWER ONE EIGHTH BLOCK
1FB81 HORIZONTAL ONE EIGHTH BLOCK-1358
1FB82 UPPER ONE QUARTER BLOCK
→ 2582 lower one quarter block
1FB83 UPPER THREE EIGHTHS BLOCK
→ 2583 lower three eighths block
1FB84 UPPER FIVE EIGHTHS BLOCK
→ 2585 lower five eighths block
1FB85 UPPER THREE QUARTERS BLOCK
→ 2586 lower three quarters block
1FB86 UPPER SEVEN EIGHTHS BLOCK
→ 2587 lower seven eighths block
1FB87 RIGHT ONE QUARTER BLOCK
→ 258E left one quarter block
1FB88 RIGHT THREE EIGHTHS BLOCK
→ 258D left three eighths block
1FB89 RIGHT FIVE EIGHTHS BLOCK
→ 258B left five eighths block
1FB8A RIGHT THREE QUARTERS BLOCK
→ 258A left three quarters block
1FB8B RIGHT SEVEN EIGHTHS BLOCK
→ 2589 left seven eighths block
1FB8C UPPER RIGHT SEVEN EIGHTHS BLOCK
• a rectangle seven eighths the width and seven eighths the height of the character cell
1FB8D LOWER RIGHT SEVEN EIGHTHS BLOCK
1FB8E LOWER LEFT SEVEN EIGHTHS BLOCK
1FB8F UPPER LEFT SEVEN EIGHTHS BLOCK
1FB90 LEFT ONE EIGHTH BLOCK AND RIGHT THREE QUARTERS BLOCK
1FB91 LEFT ONE QUARTER BLOCK AND RIGHT FIVE EIGHTHS BLOCK
1FB92 LEFT THREE EIGHTHS BLOCK AND RIGHT HALF BLOCK
1FB93 LEFT HALF BLOCK AND RIGHT THREE EIGHTHS BLOCK
1FB94 LEFT FIVE EIGHTHS BLOCK AND RIGHT ONE QUARTER BLOCK
1FB95 LEFT THREE QUARTERS BLOCK AND RIGHT ONE EIGHTH BLOCK
1FB96 UPPER ONE EIGHTH BLOCK AND LOWER THREE QUARTERS BLOCK
1FB97 UPPER ONE QUARTER BLOCK AND LOWER FIVE EIGHTHS BLOCK
1FB98 UPPER THREE EIGHTHS BLOCK AND LOWER HALF BLOCK
1FB99 UPPER HALF BLOCK AND LOWER THREE EIGHTHS BLOCK
1FB9A UPPER FIVE EIGHTHS BLOCK AND LOWER ONE QUARTER BLOCK
1FB9B UPPER THREE QUARTERS BLOCK AND LOWER ONE EIGHTH BLOCK

## Shade characters

1FB9C LEFT HALF MEDIUM SHADE
1FB9D RIGHT HALF MEDIUM SHADE
1FB9E UPPER HALF MEDIUM SHADE
1FB9F LOWER HALF MEDIUM SHADE
1FBA0 INVERSE MEDIUM SHADE
→ 2592 medium shade
1FBA1 UPPER HALF BLOCK AND LOWER HALF INVERSE MEDIUM SHADE
1FBA2 UPPER HALF INVERSE MEDIUM SHADE AND LOWER HALF BLOCK
1FBA3 <reserved>
= left half block and right half inverse medium shade
1FBA4 LEFT HALF INVERSE MEDIUM SHADE AND RIGHT HALF BLOCK

## Terminal graphic characters

1FBA5 FOUR-BY-FOUR CHECKER BOARD
→ 1F67E checker board
1FBA6 REVERSE FOUR-BY-FOUR CHECKER BOARD
→ 1F67F reverse checker board
1FBA7 UPPER LEFT TO LOWER RIGHT FILL
→ 25A7 square with upper left to lower right fill
1FBA8 INVERSE UPPER LEFT TO LOWER RIGHT FILL
1FBA9 UPPER RIGHT TO LOWER LEFT FILL
→ 25A8 square with upper right to lower left fill
1FBAA INVERSE UPPER RIGHT TO LOWER LEFT FILL

## Dingbat

1FBAB INVERSE CHECK MARK
→ 2713 ✓ check mark

## Terminal graphic characters

1FBAC INVERSE LIGHT DIAGONAL CROSS
→ 2573 ╳ box drawings light diagonal cross
1FBAD INVERSE LIGHT DIAGONAL MIDDLE RIGHT TO LOWER CENTRE
1FBAE INVERSE LIGHT DIAGONAL DIAMOND

## Colored block element

1FBAF BORDER-COLOURED FULL BLOCK
→ 2588 █ full block

## Character cell diagonals

1FBB0 BOX DRAWINGS LIGHT DIAGONAL UPPER CENTRE TO MIDDLE LEFT TO LOWER CENTRE
1FBB1 BOX DRAWINGS LIGHT DIAGONAL UPPER CENTRE TO MIDDLE RIGHT TO LOWER CENTRE
1FBB2 BOX DRAWINGS LIGHT DIAGONAL MIDDLE LEFT TO LOWER CENTRE TO MIDDLE RIGHT
1FBB3 BOX DRAWINGS LIGHT DIAGONAL MIDDLE LEFT TO UPPER CENTRE TO MIDDLE RIGHT
1FBB4 BOX DRAWINGS LIGHT DIAGONAL UPPER CENTRE TO MIDDLE LEFT
1FBB5 BOX DRAWINGS LIGHT DIAGONAL UPPER CENTRE TO MIDDLE RIGHT
1FBB6 BOX DRAWINGS LIGHT DIAGONAL MIDDLE LEFT TO LOWER CENTRE
1FBB7 BOX DRAWINGS LIGHT DIAGONAL MIDDLE RIGHT TO LOWER CENTRE
1FBB8 BOX DRAWINGS LIGHT DIAGONAL UPPER CENTRE TO MIDDLE LEFT AND MIDDLE RIGHT TO LOWER CENTRE
1FBB9 BOX DRAWINGS LIGHT DIAGONAL UPPER CENTRE TO MIDDLE RIGHT AND MIDDLE LEFT TO LOWER CENTRE
1FBBA BOX DRAWINGS LIGHT DIAGONAL DIAMOND
1FBBB BOX DRAWINGS LIGHT DIAGONAL UPPER CENTRE TO MIDDLE RIGHT TO LOWER CENTRE TO MIDDLE LEFT
1FBBC BOX DRAWINGS LIGHT DIAGONAL UPPER CENTRE TO MIDDLE LEFT TO LOWER CENTRE TO MIDDLE RIGHT
1FBBD BOX DRAWINGS LIGHT DIAGONAL MIDDLE LEFT TO UPPER CENTRE TO MIDDLE RIGHT TO LOWER CENTRE
1FBBE BOX DRAWINGS LIGHT DIAGONAL MIDDLE RIGHT TO UPPER CENTRE TO MIDDLE LEFT TO LOWER CENTRE

## Light solid line with stroke

1FBBF BOX DRAWINGS LIGHT HORIZONTAL WITH VERTICAL STROKE

## Terminal graphic characters

1FBC0 ARROWHEAD-SHAPED POINTER
1FBC1 LEFT HALF RUNNING MAN
- faces right whereas 1F3C3 ·· faces left
- Running Man is the name for these characters in documentation for the Apple II

→ 1F3C3 ·· runner

1FBC2 RIGHT HALF RUNNING MAN

## Arrows

1FBC3 INVERSE DOWNWARDS ARROW WITH TIP LEFTWARDS
→ 21B2 ↲ downwards arrow with tip leftwards
1FBC4 LEFTWARDS ARROW AND UPPER AND LOWER ONE EIGHTH BLOCK
1FBC5 RIGHTWARDS ARROW AND UPPER AND LOWER ONE EIGHTH BLOCK
1FBC6 DOWNWARDS ARROW AND RIGHT ONE EIGHTH BLOCK
1FBC7 UPWARDS ARROW AND RIGHT ONE EIGHTH BLOCK

## Terminal graphic characters

1FBC8 LEFT HALF FOLDER
→ 1F4C1 ·· file folder
→ 1F5C0 ·· folder
1FBC9 RIGHT HALF FOLDER
1FBCA VOIDED GREEK CROSS
→ 0023 # number sign
→ 256C ╬ box drawings double vertical and horizontal
→ 2719 ✙ outlined greek cross
→ 271A ✚ heavy greek cross
→ 1F7A3 · medium greek cross
1FBCB RIGHT OPEN SQUARED DOT
→ 2ACE ⊐ square right open box operator
1FBCC TWO PAIRS OF DIAGONAL LINES CROSSING
→ 2A33 ⨳ smash product
1FBCD LEFT THIRD WHITE RIGHT POINTING INDEX
→ 261E ☞ white right pointing index
1FBCE MIDDLE THIRD WHITE RIGHT POINTING INDEX
1FBCF RIGHT THIRD WHITE RIGHT POINTING INDEX
1FBD0 NEGATIVE SQUARED QUESTION MARK
→ 003F ? question mark
→ FFFD  replacement character
1FBD1 STICK FIGURE
→ 1F6B9 · mens symbol
1FBD2 STICK FIGURE WITH ARMS RAISED
1FBD3 STICK FIGURE LEANING LEFT
1FBD4 STICK FIGURE LEANING RIGHT
1FBD5 STICK FIGURE WITH DRESS
→ 1F6BA · womens symbol
1FBD6 WHITE UP-POINTING CHEVRON
→ 2302 ⌂ house
→ 1F530 · japanese symbol for beginner

## Block elements

1FBD7 HEAVY HORIZONTAL FILL
= upper middle and lower one quarter block
→ 3013 〓 geta mark
1FBD8 INVERSE HEAVY HORIZONTAL FILL
= upper and lower middle one quarter block

## Terminal graphic character

1FBD9 🮙 WHITE HEAVY SALTIRE WITH ROUNDED CORNERS
→ 274C ❌ cross mark
→ 1F5D9 🗙 cancellation x
→ 1F7AC 🞬 heavy saltire

## Smooth mosaic terminal graphic characters

1FBDA 🮚 UPPER AND LOWER TRIANGULAR HALF BLOCK
→ 29D7 ⧗ black hourglass
1FBDB 🮛 LEFT AND RIGHT TRIANGULAR HALF BLOCK
→ 29D3 ⧓ black bowtie

## Shade characters

1FBDC 🮜 UPPER LEFT TRIANGULAR MEDIUM SHADE
→ 25E4 ◤ black upper left triangle
1FBDD 🮝 UPPER RIGHT TRIANGULAR MEDIUM SHADE
→ 25E5 ◥ black upper right triangle
1FBDE 🮞 LOWER RIGHT TRIANGULAR MEDIUM SHADE
→ 25E2 ◢ black lower right triangle
1FBDF 🮟 LOWER LEFT TRIANGULAR MEDIUM SHADE
→ 25E3 ◣ black lower left triangle

## Segmented digits

1FBF0 🯰 SEGMENTED DIGIT ZERO
→ 0030 0 digit zero
1FBF1 🯱 SEGMENTED DIGIT ONE
→ 0031 1 digit one
1FBF2 🯲 SEGMENTED DIGIT TWO
→ 0032 2 digit two
1FBF3 🯳 SEGMENTED DIGIT THREE
→ 0033 3 digit three
1FBF4 🯴 SEGMENTED DIGIT FOUR
→ 0034 4 digit four
1FBF5 🯵 SEGMENTED DIGIT FIVE
→ 0035 5 digit five
1FBF6 🯶 SEGMENTED DIGIT SIX
→ 0036 6 digit six
1FBF7 🯷 SEGMENTED DIGIT SEVEN
→ 0037 7 digit seven
1FBF8 🯸 SEGMENTED DIGIT EIGHT
→ 0038 8 digit eight
1FBF9 🯹 SEGMENTED DIGIT NINE
→ 0039 9 digit nine

**Figures.**

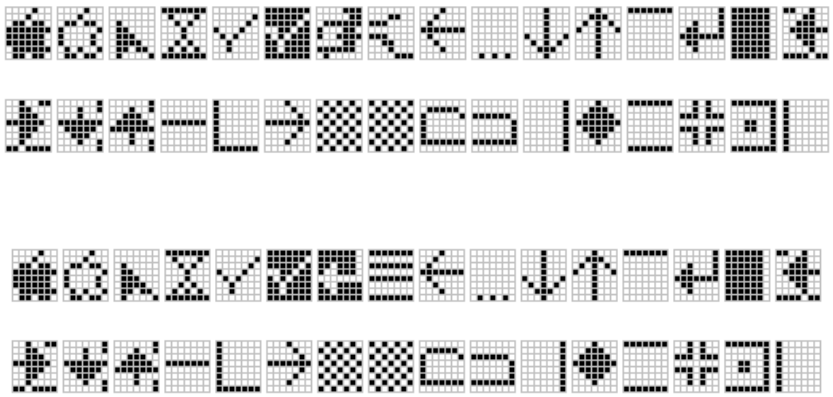


**Figure 1.** MouseText as implemented on the Apple IIc (above, with RUNNING MAN) and IIGS (below, with replacement characters). (Wikipedia)


**Figure 2.** Character dump of ATASCII glyphs.

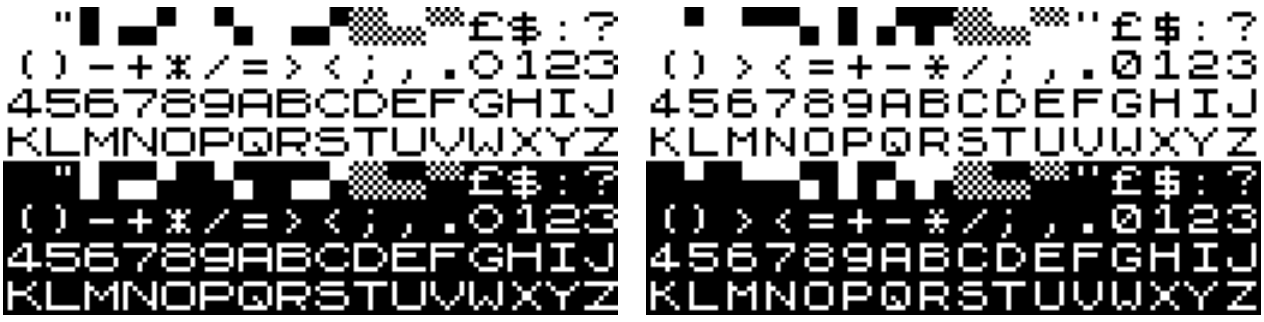



**Figure 3.** Sinclair ZX80 (left) and ZX81 (right) character dumps. (Wikipedia, CCO 1.0)

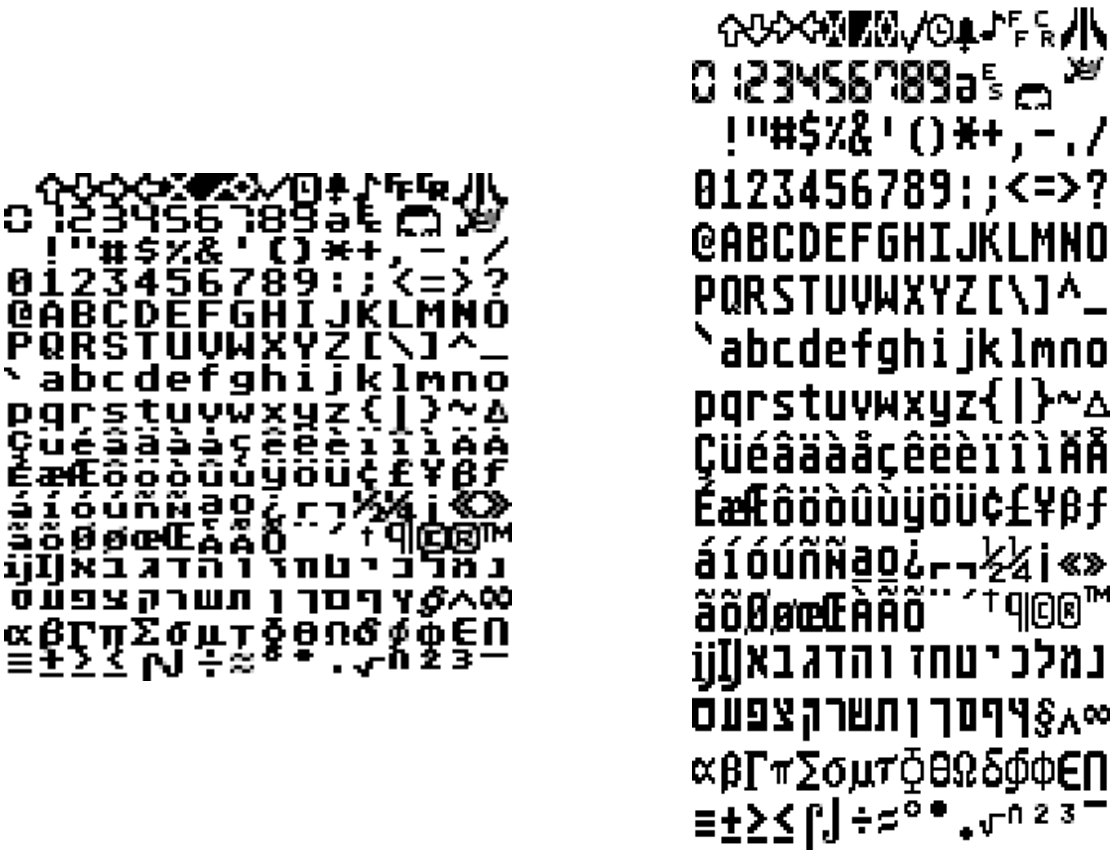


**Figure 4.** Atari ST glyphs, 8 pixels high (left) and 16 pixels high (right). Note 7-segment styled digits at 0x10 through 0x19 (proposed), and Atari logo at 0x0E–0x0F and J.R. “Bob” Dobbs image at 0x1C–0x1F (not proposed; see Section 8). (Wikipedia, CCO 1.0)


**Figure 5.** TI-99/4A character dump, generated by Rebecca Bettencourt using a JavaScript-based emulator, showing BORDER-COLOURED FULL BLOCK (the yellow square under the U of RUN).

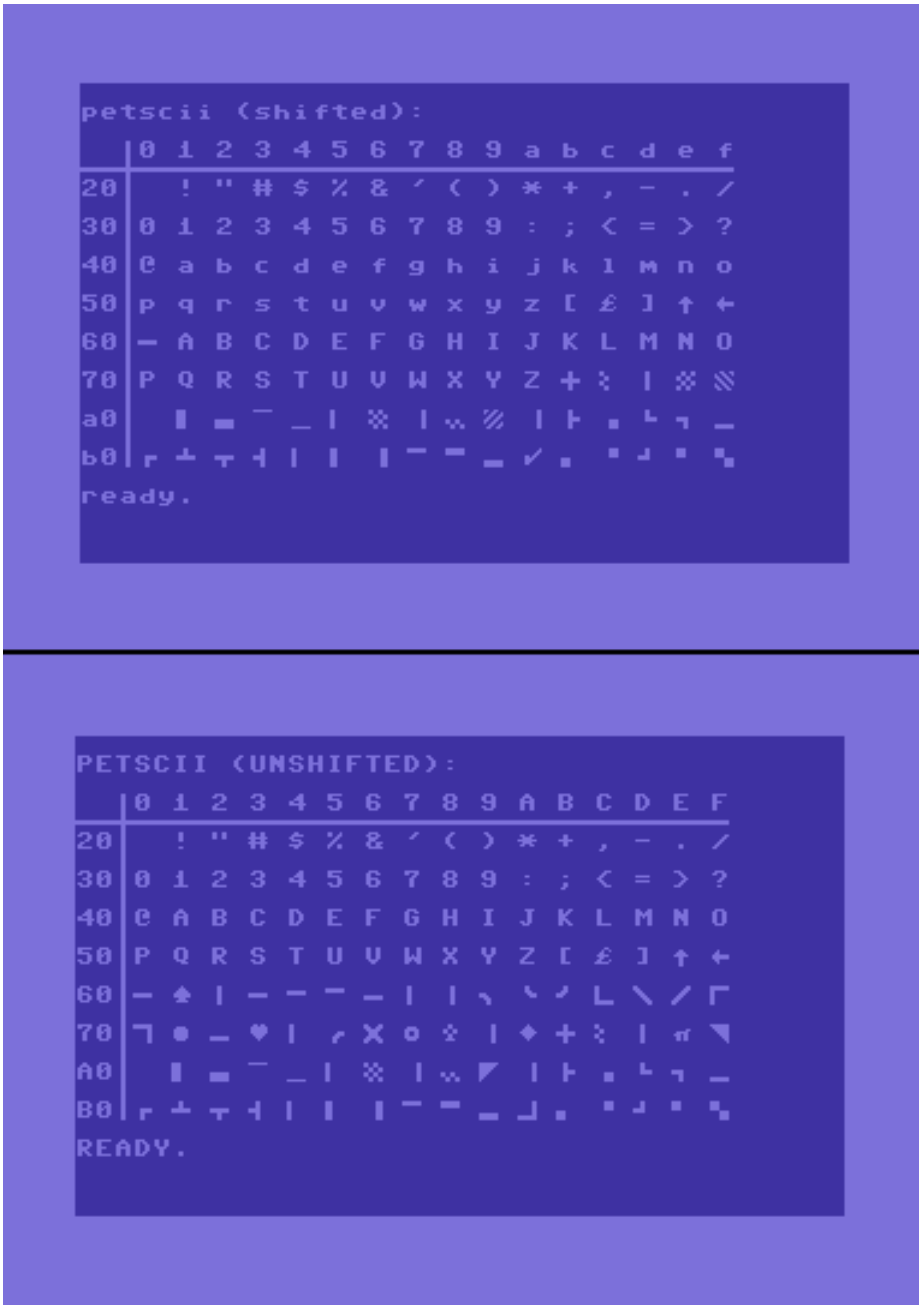



**Figure 6.** PETSCII as displayed on the Commodore 64. Other Commodore models used slightly different versions of this set. (Wikipedia)

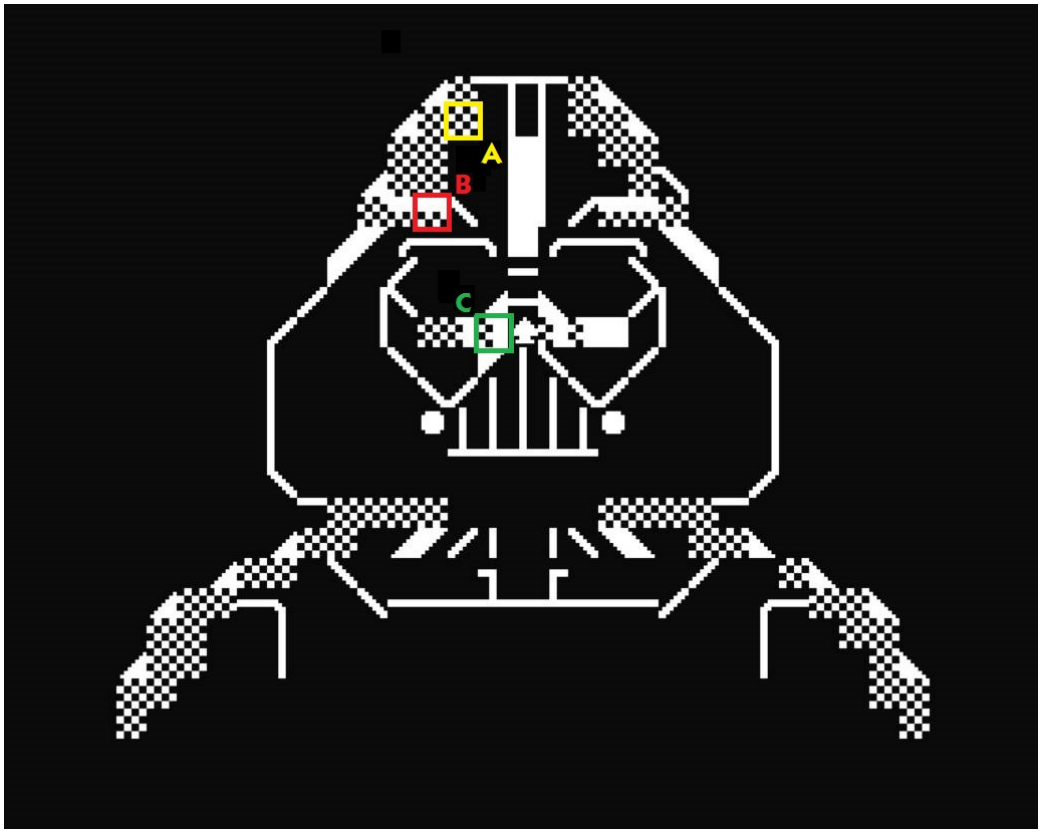



**Figure 7.** Image created on the Commodore 64 using semigraphics. Examples of proposed characters are highlighted: (A) U+1FBA0 INVERSE MEDIUM SHADE, (B) U+1FBA1 UPPER HALF BLOCK AND LOWER HALF INVERSE MEDIUM SHADE, (C) U+1FBA4 LEFT HALF INVERSE MEDIUM SHADE AND RIGHT HALF BLOCK.

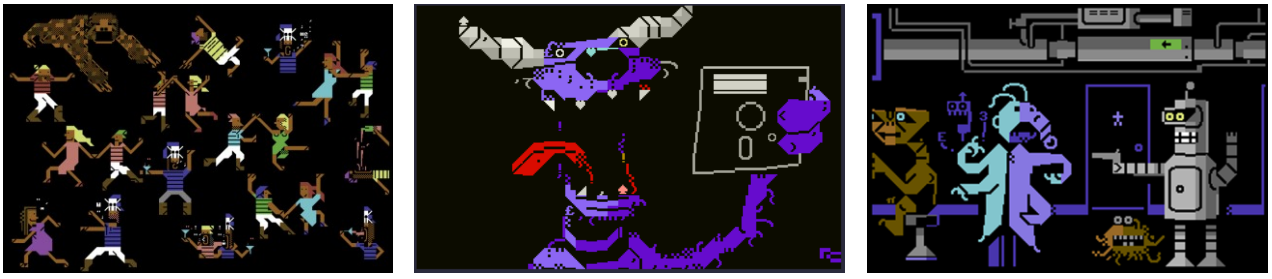


**Figure 8.** Additional examples of art created on the Commodore 64, using semigraphics from the PETSCII repertoire.

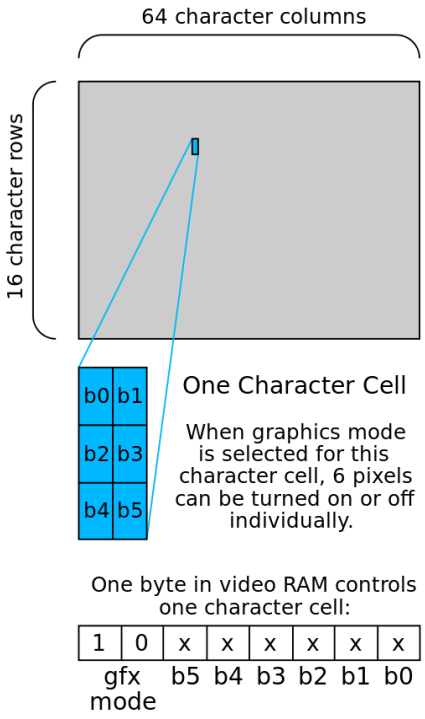



**Figure 9.** Illustration of the use of semigraphics to plot "pixels" on the TRS-80 by displaying the appropriate 2 × 3 block graphic. (Wikipedia)

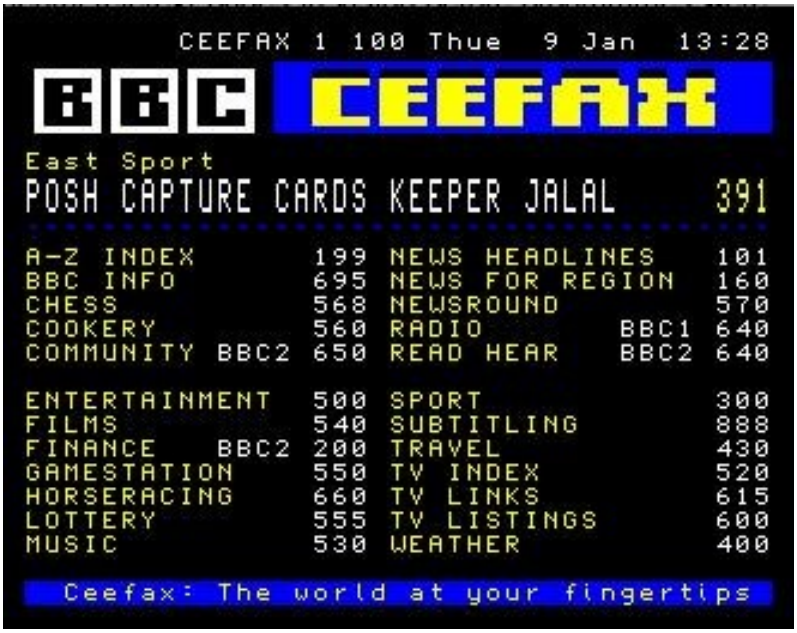



**Figure 10.** Screen shot from Ceefax, the world's first teletext information service. Note the use of foreground and background colors, double-height text, and semigraphics.


**Figure 11.** A different example of the color and semigraphics capabilities of teletext. This image is composed using a wide variety of block sextant characters. (Teletext Art Research Lab)


**Figure 12.** A present-day example of digital teletext in Romania, using block semigraphics from the teletext character set. (Ricardo Bánffy)

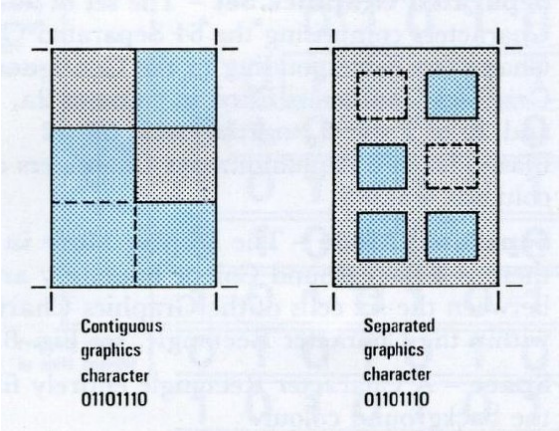



**Figure 13.** Illustration of "contiguous mode" versus "separated mode" 2 × 3 block graphics in teletext. (IBA Technical Review #2)

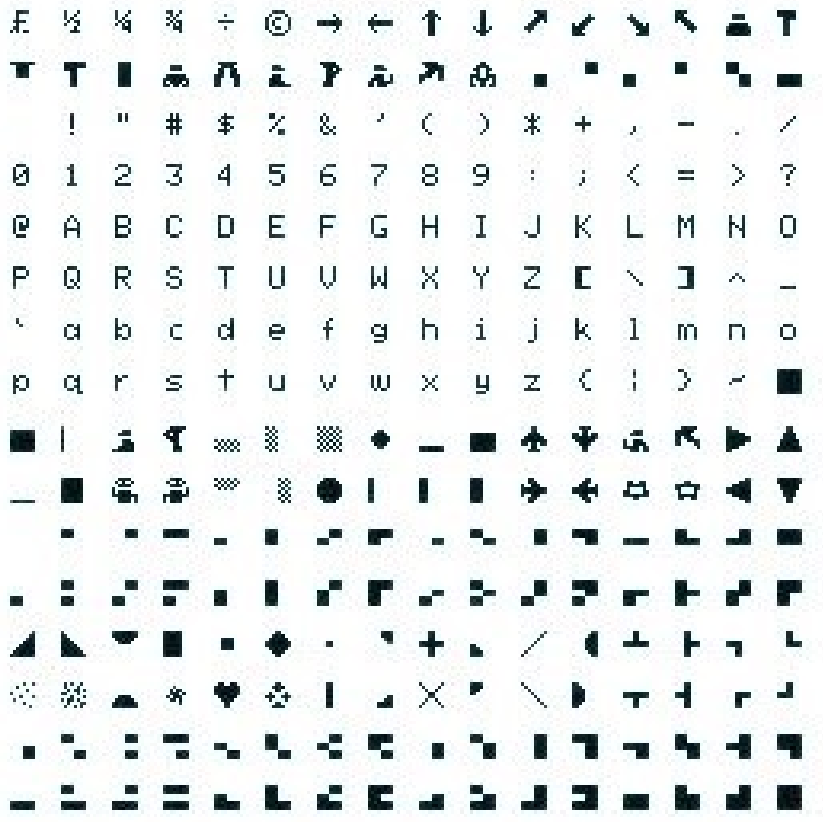


**Figure 14.** Mattel Aquarius character set. Several of the glyphs in this collection could not be identified, and hence this platform was not used as input to this proposal (except for U+1FB9D RIGHT HALF MEDIUM SHADE). See Section 8 for more information on non-proposed characters.

## A. Administrative

1. Title
**Proposal to add characters from legacy computers and teletext to the UCS**
2. Requester's name
**Terminals Working Group (Doug Ewell et al.)**
3. Requester type (Member body/Liaison/Individual contribution)
**Individual contribution.**
4. Submission date
**2018-07-20**
5. Requester's reference (if applicable)
6. Choose one of the following:
6a. This is a complete proposal
**Yes.**
6b. More information will be provided later
**No.**

## B. Technical – General

1. Choose one of the following:
1a. This proposal is for a new script (set of characters)
**Yes.**
1b. Proposed name of script
**Graphics for Legacy Computing.**
1c. The proposal is for addition of character(s) to an existing block
**No.**
1d. Name of the existing block
2. Number of characters in proposal
**235.**
3. Proposed category (A-Contemporary; B.1-Specialized (small collection); B.2-Specialized (large collection); C-Major extinct; D-Attested extinct; E-Minor extinct; F-Archaic Hieroglyphic or Ideographic; G-Obscure or questionable usage symbols)
**Category B.1.**
4a. Is a repertoire including character names provided?
**Yes.**
4b. If YES, are the names in accordance with the "character naming guidelines" in Annex L of P&P document?
**Yes.**
4c. Are the character shapes attached in a legible form suitable for review?
**Yes.**
5a. Who will provide the appropriate computerized font (ordered preference: True Type, or PostScript format) for publishing the standard?
**Rebecca Bettencourt**
5b. If available now, identify source(s) for the font (include address, e-mail, ftp-site, etc.) and indicate the tools used:
**Rebecca Bettencourt, FontForge.**
6a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided?
**Yes.**
6b. Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached?
**Yes.**
7. Does the proposal address other aspects of character data processing (if applicable) such as input, presentation, sorting, searching, indexing, transliteration etc. (if yes please enclose information)?
**Yes.**
8. Submitters are invited to provide any additional information about Properties of the proposed Character(s) or Script that will assist in correct understanding of and correct linguistic processing of the proposed character(s) or script.
**See above.**

## C. Technical – Justification

1. Has this proposal for addition of character(s) been submitted before? If YES, explain.
**Yes, in L2/17-435 and L2/17-435R, the previous versions of this proposal. Five of the characters were proposed by Eduardo Marín Silva in L2/17-194.**
2a. Has contact been made to members of the user community (for example: National Body, user groups of the script or characters, other experts, etc.)?
**Yes.**
2b. If YES, with whom?
**comp.sys.apple2 (Apple II newsgroup); Atari ST user community; TRS-80 user community (George Phillips).**

2c. If YES, available relevant documents
3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included?
**Contemporary use by specialists and hobbyists.**
4a. The context of use for the proposed characters (type of use; common or rare)
**Rare.**
4b. Reference
5a. Are the proposed characters in current use by the user community?
**Yes.**
5b. If YES, where?
**Worldwide, but particularly in North America and Europe.**
6a. After giving due considerations to the principles in the P&P document must the proposed characters be entirely in the BMP?
**No.**
6b. If YES, is a rationale provided?
6c. If YES, reference
7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?
**Mostly yes, but this is not required.**
8a. Can any of the proposed characters be considered a presentation form of an existing character or character sequence?
**Yes, the "7-segment" styled digits can be considered presentation forms of U+0030 through U+0039.**
8b. If YES, is a rationale for its inclusion provided?
**Yes.**
8c. If YES, reference
**Included in proposal.**
9a. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters?
**No.**
9b. If YES, is a rationale for its inclusion provided?
9c. If YES, reference
10a. Can any of the proposed character(s) be considered to be similar (in appearance or function) to an existing character?
**Yes.**
10b. If YES, is a rationale for its inclusion provided?
**Yes.**
10c. If YES, reference
**The proposal document describes new semigraphics which are superficially similar to existing characters.**
11a. Does the proposal include use of combining characters and/or use of composite sequences (see clauses 4.12 and 4.14 in ISO/IEC 10646-1: 2000)?
**No.**
11b. If YES, is a rationale for such use provided?
11c. If YES, reference
11d. Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?
11e. If YES, reference
12a. Does the proposal contain characters with any special properties such as control function or similar semantics?
**No.**
12b. If YES, describe in detail (include attachment if necessary)
13a. Does the proposal contain any Ideographic compatibility character(s)?
**No.**
13b. If YES, is the equivalent corresponding unified ideographic character(s) identified?