

Miscellaneous Technical

Range: 2300–23FF

The Unicode Standard, Version 4.0

This file contains an excerpt from the character code tables and list of character names for *The Unicode Standard, Version 4.0*.

Characters in this chart that are new for The Unicode Standard, Version 4.0 are shown in conjunction with any existing characters. For ease of reference, the new characters have been highlighted in the chart grid and in the names list.

This file will not be updated with errata, or when additional characters are assigned to the Unicode Standard. See <http://www.unicode.org/charts> for access to a complete list of the latest character charts.

Disclaimer

These charts are provided as the on-line reference to the character contents of the Unicode Standard, Version 4.0 but do not provide all the information needed to fully support individual scripts using the Unicode Standard. For a complete understanding of the use of the characters contained in this excerpt file, please consult the appropriate sections of The Unicode Standard, Version 4.0 (ISBN 0-321-18578-1), as well as Unicode Standard Annexes #9, #11, #14, #15, #24 and #29, the other Unicode Technical Reports and the Unicode Character Database, which are available on-line.

See <http://www.unicode.org/Public/UNIDATA/UCD.html> and <http://www.unicode.org/unicode/reports>

A thorough understanding of the information contained in these additional sources is required for a successful implementation.

Fonts

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See <http://www.unicode.org/charts/fonts.html> for a list.

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See <http://www.unicode.org/pending/pending.html> and <http://www.unicode.org/unicode/alloc/Pipeline.html>.

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	230	231	232	233	234	235	236	237	238	239	23A	23B	23C	23D	23E	23F
0	2300	2310	2320	2330	2340	2350	2360	2370	2380	2390	23A0	23B0	23C0	23D0		
1	2301	2311	2321	2331	2341	2351	2361	2371	2381	2391	23A1	23B1	23C1			
2	2302	2312	2322	2332	2342	2352	2362	2372	2382	2392	23A2	23B2	23C2			
3	2303	2313	2323	2333	2343	2353	2363	2373	2383	2393	23A3	23B3	23C3			
4	2304	2314	2324	2334	2344	2354	2364	2374	2384	2394	23A4	23B4	23C4			
5	2305	2315	2325	2335	2345	2355	2365	2375	2385	2395	23A5	23B5	23C5			
6	2306	2316	2326	2336	2346	2356	2366	2376	2386	2396	23A6	23B6	23C6			
7	2307	2317	2327	2337	2347	2357	2367	2377	2387	2397	23A7	23B7	23C7			
8	2308	2318	2328	2338	2348	2358	2368	2378	2388	2398	23A8	23B8	23C8			
9	2309	2319	2329	2339	2349	2359	2369	2379	2389	2399	23A9	23B9	23C9			
A	230A	231A	232A	233A	234A	235A	236A	237A	238A	239A	23AA	23BA	23CA			
B	230B	231B	232B	233B	234B	235B	236B	237B	238B	239B	23AB	23BB	23CB			
C	230C	231C	232C	233C	234C	235C	236C	237C	238C	239C	23AC	23BC	23CC			
D	230D	231D	232D	233D	234D	235D	236D	237D	238D	239D	23AD	23BD	23CD			
E	230E	231E	232E	233E	234E	235E	236E	237E	238E	239E	23AE	23BE	23CE			
F	230F	231F	232F	233F	234F	235F	236F	237F	238F	239F	23AF	23BF	23CF			

Miscellaneous technical

- 2300 ∅ DIAMETER SIGN
→ 2205 ∅ empty set
- 2301 ↘ ELECTRIC ARROW
• from ISO 2047
• symbol for End of Transmission
- 2302 ☐ HOUSE
- 2303 ^ UP ARROWHEAD
→ 005E ^ circumflex accent
→ 02C4 ^ modifier letter up arrowhead
→ 2038 ^ caret
→ 2227 ^ logical and
- 2304 ∨ DOWN ARROWHEAD
→ 02C5 ∨ modifier letter down arrowhead
→ 2228 ∨ logical or
→ 2335 ∨ countersink
- 2305 ⌘ PROJECTIVE
→ 22BC ⌘ nand
- 2306 ≙ PERSPECTIVE
- 2307 ∷ WAVY LINE
→ 3030 ∷ wavy dash

Corner brackets

The ceiling and floor characters are recommended for general-purpose corner brackets, rather than the CJK corner brackets, which are wide quotation marks.

- 2308 ⌈ LEFT CEILING
= APL upstile
→ 300C ⌈ left corner bracket
- 2309 ⌋ RIGHT CEILING
→ 20E7 ⌋ combining annuity symbol
- 230A ⌌ LEFT FLOOR
= APL downstile
- 230B ⌍ RIGHT FLOOR
→ 300D ⌍ right corner bracket

Crops

- 230C ⌎ BOTTOM RIGHT CROP
• set of four “crop” corners, arranged facing outward
- 230D ⌏ BOTTOM LEFT CROP
- 230E ⌐ TOP RIGHT CROP
- 230F ⌑ TOP LEFT CROP

Miscellaneous technical

- 2310 ⌒ REVERSED NOT SIGN
= beginning of line
→ 00AC ⌒ not sign
- 2311 ◼ SQUARE LOZENGE
= Kissen (pillow)
• used as a command delimiter in some very old computers
- 2312 ⌒ ARC
→ 25E0 ⌒ upper half circle
- 2313 ◐ SEGMENT
- 2314 ∠ SECTOR
- 2315 📞 TELEPHONE RECORDER

- 2316 ⚡ POSITION INDICATOR
- 2317 # VIEWDATA SQUARE
→ 22D5 # equal and parallel to
- 2318 ⌘ PLACE OF INTEREST SIGN
= COMMAND KEY
- 2319 ⌞ TURNED NOT SIGN
= line marker

GUI icons

- 231A ⌚ WATCH
- 231B ⌚ HOURGLASS

Quine corners

- 231C ⌔ TOP LEFT CORNER
• set of four “quine” corners, for quincuncial arrangement
- 231D ⌕ TOP RIGHT CORNER
- 231E ⌖ BOTTOM LEFT CORNER
- 231F ⌗ BOTTOM RIGHT CORNER

Integral pieces

- 2320 ∫ TOP HALF INTEGRAL
→ 23AE ∫ integral extension
- 2321 ∫ BOTTOM HALF INTEGRAL

Frown and smile

- 2322 ☹ FROWN
→ 2040 ☹ character tie
- 2323 ☺ SMILE
→ 203F ☺ undertie

Keyboard symbols

- 2324 ⌘ UP ARROWHEAD BETWEEN TWO HORIZONTAL BARS
= ENTER KEY
- 2325 ⌘ OPTION KEY
- 2326 ⌘ ERASE TO THE RIGHT
= DELETE TO THE RIGHT KEY
- 2327 ⌘ X IN A RECTANGLE BOX
= CLEAR KEY
- 2328 ⌨ KEYBOARD

Angle brackets

These are discouraged for mathematical use because of their canonical equivalence to CJK punctuation.

- 2329 ⌠ LEFT-POINTING ANGLE BRACKET
→ 003C < less-than sign
→ 2039 < single left-pointing angle quotation mark
→ 27E8 ⌠ mathematical left angle bracket
≡ 3008 ⌠ left angle bracket
- 232A ⌡ RIGHT-POINTING ANGLE BRACKET
→ 003E > greater-than sign
→ 203A > single right-pointing angle quotation mark
→ 27E9 ⌡ mathematical right angle bracket
≡ 3009 ⌡ right angle bracket

Keyboard symbol

232B ☒ ERASE TO THE LEFT
= DELETE TO THE LEFT KEY

Chemistry symbol

232C ⬡ BENZENE RING

Drafting symbols

232D ∼ CYLINDRICITY
232E ∞ ALL AROUND-PROFILE
232F = SYMMETRY
2330 // TOTAL RUNOUT
2331 ⊕ DIMENSION ORIGIN
2332 ▷ CONICAL TAPER
2333 ▽ SLOPE
→ 25FA ▽ lower left triangle
2334 ⊔ COUNTERBORE
→ 2423 ⊔ open box
2335 ∨ COUNTERSINK
→ 2304 ∨ down arrowhead

APL

2336 ⊔ APL FUNCTIONAL SYMBOL I-BEAM
2337 ⊔ APL FUNCTIONAL SYMBOL SQUISH QUAD
→ 2395 ⊔ apl functional symbol quad
→ 25AF ⊔ white vertical rectangle
→ 2AFF ⊔ n-ary white vertical bar
2338 ⊔ APL FUNCTIONAL SYMBOL QUAD EQUAL
2339 ⊔ APL FUNCTIONAL SYMBOL QUAD DIVIDE
233A ⊔ APL FUNCTIONAL SYMBOL QUAD DIAMOND
233B ⊔ APL FUNCTIONAL SYMBOL QUAD JOT
→ 29C7 ⊔ squared small circle
233C ⊔ APL FUNCTIONAL SYMBOL QUAD CIRCLE
233D ⊔ APL FUNCTIONAL SYMBOL CIRCLE STILE
233E ⊔ APL FUNCTIONAL SYMBOL CIRCLE JOT
→ 229A ⊔ circled ring operator
→ 29BE ⊔ circled white bullet
233F ∕ APL FUNCTIONAL SYMBOL SLASH BAR
2340 ∕ APL FUNCTIONAL SYMBOL BACKSLASH BAR
2341 ⊔ APL FUNCTIONAL SYMBOL QUAD SLASH
→ 29C4 ⊔ squared rising diagonal slash
2342 ⊔ APL FUNCTIONAL SYMBOL QUAD BACKSLASH
→ 29C5 ⊔ squared falling diagonal slash
2343 ⊔ APL FUNCTIONAL SYMBOL QUAD LESS-THAN

2344 ⊔ APL FUNCTIONAL SYMBOL QUAD GREATER-THAN
2345 + APL FUNCTIONAL SYMBOL LEFTWARDS VANE
2346 + APL FUNCTIONAL SYMBOL RIGHTWARDS VANE
2347 ⊔ APL FUNCTIONAL SYMBOL QUAD LEFTWARDS ARROW
2348 ⊔ APL FUNCTIONAL SYMBOL QUAD RIGHTWARDS ARROW
2349 ⊔ APL FUNCTIONAL SYMBOL CIRCLE BACKSLASH
→ 29B0 ⊔ reversed empty set
234A ⊔ APL FUNCTIONAL SYMBOL DOWN TACK UNDERBAR
= up tack underbar
• preferred naming for APL tack symbols now follows the London Convention in ISO/IEC 13751:2000 (APL Extended)
→ 22A5 ⊔ up tack
234B ⊔ APL FUNCTIONAL SYMBOL DELTA STILE
234C ⊔ APL FUNCTIONAL SYMBOL QUAD DOWN CARET
234D ⊔ APL FUNCTIONAL SYMBOL QUAD DELTA
234E ⊔ APL FUNCTIONAL SYMBOL DOWN TACK JOT
= up tack jot
→ 22A5 ⊔ up tack
234F + APL FUNCTIONAL SYMBOL UPWARDS VANE
2350 ⊔ APL FUNCTIONAL SYMBOL QUAD UPWARDS ARROW
2351 ⊔ APL FUNCTIONAL SYMBOL UP TACK OVERBAR
= down tack overbar
→ 22A4 ⊔ down tack
→ 3012 ⊔ postal mark
2352 ∕ APL FUNCTIONAL SYMBOL DEL STILE
2353 ⊔ APL FUNCTIONAL SYMBOL QUAD UP CARET
2354 ⊔ APL FUNCTIONAL SYMBOL QUAD DEL
2355 ⊔ APL FUNCTIONAL SYMBOL UP TACK JOT
= down tack jot
→ 22A4 ⊔ down tack
2356 + APL FUNCTIONAL SYMBOL DOWNWARDS VANE
2357 ⊔ APL FUNCTIONAL SYMBOL QUAD DOWNWARDS ARROW
2358 ∕ APL FUNCTIONAL SYMBOL QUOTE UNDERBAR
2359 ⊔ APL FUNCTIONAL SYMBOL DELTA UNDERBAR
235A ⊔ APL FUNCTIONAL SYMBOL DIAMOND UNDERBAR

235B	◊	APL FUNCTIONAL SYMBOL JOT UNDERBAR
235C	⊖	APL FUNCTIONAL SYMBOL CIRCLE UNDERBAR
235D	⊙	APL FUNCTIONAL SYMBOL UP SHOE JOT → 2A40 ⊙ intersection with dot
235E	⌈	APL FUNCTIONAL SYMBOL QUOTE QUAD
235F	⊕	APL FUNCTIONAL SYMBOL CIRCLE STAR → 229B ⊕ circled asterisk operator
2360	⌈	APL FUNCTIONAL SYMBOL QUAD COLON
2361	‡	APL FUNCTIONAL SYMBOL UP TACK DIAERESIS = down tack diaeresis → 22A4 ‡ down tack
2362	∇	APL FUNCTIONAL SYMBOL DEL DIAERESIS
2363	*	APL FUNCTIONAL SYMBOL STAR DIAERESIS
2364	∘	APL FUNCTIONAL SYMBOL JOT DIAERESIS = hoot
2365	⊖	APL FUNCTIONAL SYMBOL CIRCLE DIAERESIS = holler
2366	⊣	APL FUNCTIONAL SYMBOL DOWN SHOE STILE
2367	⌋	APL FUNCTIONAL SYMBOL LEFT SHOE STILE
2368	˘	APL FUNCTIONAL SYMBOL TILDE DIAERESIS = smirk
2369	⋈	APL FUNCTIONAL SYMBOL GREATER-THAN DIAERESIS
236A	⌣	APL FUNCTIONAL SYMBOL COMMA BAR
236B	∇	APL FUNCTIONAL SYMBOL DEL TILDE
236C	⊖	APL FUNCTIONAL SYMBOL ZILDE
236D	⊕	APL FUNCTIONAL SYMBOL STILE TILDE
236E	⋮	APL FUNCTIONAL SYMBOL SEMICOLON UNDERBAR
236F	⊘	APL FUNCTIONAL SYMBOL QUAD NOT EQUAL
2370	⌈	APL FUNCTIONAL SYMBOL QUAD QUESTION
2371	∇	APL FUNCTIONAL SYMBOL DOWN CARET TILDE
2372	∧	APL FUNCTIONAL SYMBOL UP CARET TILDE
2373	ι	APL FUNCTIONAL SYMBOL IOTA
2374	ρ	APL FUNCTIONAL SYMBOL RHO
2375	ω	APL FUNCTIONAL SYMBOL OMEGA
2376	α	APL FUNCTIONAL SYMBOL ALPHA UNDERBAR

2377	ε	APL FUNCTIONAL SYMBOL EPSILON UNDERBAR
2378	ι	APL FUNCTIONAL SYMBOL IOTA UNDERBAR
2379	ω	APL FUNCTIONAL SYMBOL OMEGA UNDERBAR
237A	α	APL FUNCTIONAL SYMBOL ALPHA

Graphics for control codes

237B	✓	NOT CHECK MARK • from ISO 2047 • symbol for Negative Acknowledge
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Miscellaneous technical

237C	⊥	RIGHT ANGLE WITH DOWNWARDS ZIGZAG ARROW
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Graphics for control codes

237D	⌞	SHOULDERED OPEN BOX • from ISO 9995-7 • keyboard symbol for No Break Space → 2423 ⌞ open box
237E	🔔	BELL SYMBOL • from ISO 2047
237F	⋮	VERTICAL LINE WITH MIDDLE DOT • from ISO 2047 • symbol for End of Medium

Keyboard symbols from ISO 9995-7

2380	↵	INSERTION SYMBOL
2381	≡	CONTINUOUS UNDERLINE SYMBOL
2382	≡	DISCONTINUOUS UNDERLINE SYMBOL
2383	≡	EMPHASIS SYMBOL
2384	Ⓜ	COMPOSITION SYMBOL
2385	⌈	WHITE SQUARE WITH CENTRE VERTICAL LINE
2386	↵	ENTER SYMBOL
2387	↵	ALTERNATIVE KEY SYMBOL
2388	⚙	HELM SYMBOL = control → 2638 ⚙ wheel of dharma
2389	⊖	CIRCLED HORIZONTAL BAR WITH NOTCH
238A	⊖	CIRCLED TRIANGLE DOWN
238B	⊖	BROKEN CIRCLE WITH NORTHWEST ARROW
238C	↵	UNDO SYMBOL

Electrotechnical symbols from IR 181

238D	⌈	MONOSTABLE SYMBOL
238E	⌈	HYSTERESIS SYMBOL
238F	⊖	OPEN-CIRCUIT-OUTPUT H-TYPE SYMBOL
2390	⊖	OPEN-CIRCUIT-OUTPUT L-TYPE SYMBOL
2391	⊖	PASSIVE-PULL-DOWN-OUTPUT SYMBOL

- 2392 \diamond PASSIVE-PULL-UP-OUTPUT SYMBOL
 2393 $=$ DIRECT CURRENT SYMBOL FORM TWO
 2394 \circ SOFTWARE-FUNCTION SYMBOL

APL

- 2395 \square APL FUNCTIONAL SYMBOL QUAD
 → 2337 \square apl functional symbol squish quad
 → 25AF \square white vertical rectangle

Keyboard symbols from ISO 9995-7

- 2396 r DECIMAL SEPARATOR KEY SYMBOL
 2397 p PREVIOUS PAGE
 2398 n NEXT PAGE
 2399 p PRINT SCREEN SYMBOL
 239A c CLEAR SCREEN SYMBOL
 → 20E2 c combining enclosing screen

Bracket pieces

- 239B $\{$ LEFT PARENTHESIS UPPER HOOK
 239C $|$ LEFT PARENTHESIS EXTENSION
 239D $\}$ LEFT PARENTHESIS LOWER HOOK
 239E $\}$ RIGHT PARENTHESIS UPPER HOOK
 239F $|$ RIGHT PARENTHESIS EXTENSION
 23A0 $\}$ RIGHT PARENTHESIS LOWER HOOK
 23A1 \lrcorner LEFT SQUARE BRACKET UPPER CORNER
 23A2 $|$ LEFT SQUARE BRACKET EXTENSION
 23A3 \lrcorner LEFT SQUARE BRACKET LOWER CORNER
 23A4 \lrcorner RIGHT SQUARE BRACKET UPPER CORNER
 23A5 $|$ RIGHT SQUARE BRACKET EXTENSION
 23A6 \lrcorner RIGHT SQUARE BRACKET LOWER CORNER
 23A7 $\{$ LEFT CURLY BRACKET UPPER HOOK
 23A8 $\}$ LEFT CURLY BRACKET MIDDLE PIECE
 23A9 $\}$ LEFT CURLY BRACKET LOWER HOOK
 23AA $|$ CURLY BRACKET EXTENSION
 23AB $\}$ RIGHT CURLY BRACKET UPPER HOOK
 23AC $\}$ RIGHT CURLY BRACKET MIDDLE PIECE
 23AD $\}$ RIGHT CURLY BRACKET LOWER HOOK

Special character extensions

- 23AE $|$ INTEGRAL EXTENSION
 → 2320 \int top half integral
 → 2321 \int bottom half integral
 23AF $-$ HORIZONTAL LINE EXTENSION
 • used for extension of arrows
 → 23D0 $|$ vertical line extension

Bracket pieces

- 23B0 $|$ UPPER LEFT OR LOWER RIGHT CURLY BRACKET SECTION
 = left moustache
 23B1 $|$ UPPER RIGHT OR LOWER LEFT CURLY BRACKET SECTION
 = right moustache

Summation sign parts

- 23B2 ∇ SUMMATION TOP
 23B3 ∇ SUMMATION BOTTOM

Vertical brackets

- 23B4 \lrcorner TOP SQUARE BRACKET
 → FE47 \lrcorner presentation form for vertical left square bracket
 23B5 \lrcorner BOTTOM SQUARE BRACKET
 → FE48 \lrcorner presentation form for vertical right square bracket
 23B6 \lrcorner BOTTOM SQUARE BRACKET OVER TOP SQUARE BRACKET

Terminal graphic characters

- 23B7 \downarrow RADICAL SYMBOL BOTTOM
 23B8 $|$ LEFT VERTICAL BOX LINE
 23B9 $|$ RIGHT VERTICAL BOX LINE

Scan lines for terminal graphics

The scan line numbers here refer to old, low-resolution technology for terminals, with only 9 scan lines per fixed-size character glyph. Even-numbered scan lines are unified with box-drawing graphics.

- 23BA $-$ HORIZONTAL SCAN LINE-1
 23BB $-$ HORIZONTAL SCAN LINE-3
 23BC $-$ HORIZONTAL SCAN LINE-7
 23BD $-$ HORIZONTAL SCAN LINE-9

Dentistry notation symbols

- 23BE \lrcorner DENTISTRY SYMBOL LIGHT VERTICAL AND TOP RIGHT
 → 2308 \lrcorner left ceiling
 23BF \lrcorner DENTISTRY SYMBOL LIGHT VERTICAL AND BOTTOM RIGHT
 → 230A \lrcorner left floor
 23C0 ϕ DENTISTRY SYMBOL LIGHT VERTICAL WITH CIRCLE
 23C1 ϕ DENTISTRY SYMBOL LIGHT DOWN AND HORIZONTAL WITH CIRCLE
 23C2 ϕ DENTISTRY SYMBOL LIGHT UP AND HORIZONTAL WITH CIRCLE
 23C3 \triangle DENTISTRY SYMBOL LIGHT VERTICAL WITH TRIANGLE
 23C4 \triangle DENTISTRY SYMBOL LIGHT DOWN AND HORIZONTAL WITH TRIANGLE
 23C5 \triangle DENTISTRY SYMBOL LIGHT UP AND HORIZONTAL WITH TRIANGLE
 23C6 \dagger DENTISTRY SYMBOL LIGHT VERTICAL AND WAVE

- 23C7 ⇄ DENTISTRY SYMBOL LIGHT DOWN AND HORIZONTAL WITH WAVE
- 23C8 ± DENTISTRY SYMBOL LIGHT UP AND HORIZONTAL WITH WAVE
- 23C9 ⊥ DENTISTRY SYMBOL LIGHT DOWN AND HORIZONTAL
 → 22A4 ⊥ down tack
 → 252C ⊥ box drawings light down and horizontal
- 23CA ⊥ DENTISTRY SYMBOL LIGHT UP AND HORIZONTAL
 → 22A5 ⊥ up tack
 → 2534 ⊥ box drawings light up and horizontal
- 23CB ⊥ DENTISTRY SYMBOL LIGHT VERTICAL AND TOP LEFT
 → 2309 ⊥ right ceiling
- 23CC ⊥ DENTISTRY SYMBOL LIGHT VERTICAL AND BOTTOM LEFT
 → 230B ⊥ right floor

Miscellaneous technical symbol

- 23CD □ SQUARE FOOT

Keyboard and UI symbols

- 23CE ↵ RETURN SYMBOL
 • may be shown with either hollow or filled glyph
 → 21B5 ↵ downwards arrow with corner leftwards
- 23CF ▲ EJECT SYMBOL
 • UI symbol to eject media

Special character extension

- 23D0 | VERTICAL LINE EXTENSION
 • used for extension of arrows
 → 23AF — horizontal line extension