

Universal Multiple-Octet Coded Character Set
International Organization for Standardization
Organisation internationale de normalisation
Международная организация по стандартизации

Doc Type: Working Group Document

Title: Legacy cuneiform font implementations and the ICE project

Source: Michael Everson

Status: Expert Contribution

Action: For information to JTC1/SC2/WG2 and UTC

Date: 2000-11-20

The Initiative for Cuneiform Encoding (ICE) has been set up to prepare a proposal for encoding Sumero-Akkadian Cuneiform in the UCS. It is estimated that the project will take at least four years. I have been preparing the present document for about two years as input to UTC and WG2; it is now input to ICE, but it seemed a good idea to let the standardization committees know what kinds of work we are doing.

The basis of the present document was a font development project I undertook some two and a half years ago. I took as the basis for my font an existing coded character set, *MacAkkadian*TM, which was developed by Paul Li and Philip Barton Payne and released in 1987. This coded character set contained “all the basic Akkadian signs (the standard Neo-Assyrian signs) listed in René Labat’s *Manual d’épigraphie akkadienne* (5th edition, 1976) and Rykle Borger’s *Assyrisch-babylonische Zeichenliste* (AOAT 33, 1978).” I myself do not have a copy of either of these works, though I have Borger’s *Akkadische Zeichenliste* (AOAT 6, 1971).

Typographic considerations. From a typographical point of view, the particular style I chose differed from that used in the *MacAkkadian* bitmap fonts in that my wedge-heads are hollow as can be found in much literature, while the *MacAkkadian* wedge-heads are filled. Choices about x-height and horizontal and vertical spacing are not absolute – basically I had to reproduce the printed model. Some of the glyph shapes were rather unclear; and I have not yet compared the whole set to Labat’s or Borger’s handwritten models. It should be clear that I was simply following the implementation and so my faith was that the original font designer knew what he was doing. It should also be remembered that my development of this font took place sporadically over a period of two and a half years, and so I am sure that some of the earlier glyphs are designed more clumsily than the later ones; I learned a lot about cuneiform font design and design efficiency as time went on.

Encoding considerations. Obviously it is not the intention of ICE just to take whatever is present in Borger, von Soden & Röllig, Labatt, Friedrich, Forrer, or anyone else and just encode it; but it does have to be said that *MacAkkadian* is a legacy character set, and so, in principle, everything in it should have some kind of mapping to the UCS encoding because, well, legacy data should be respected. If people invested the time and effort to encode and publish texts or prepare databases using such a scheme, that effort has to be respected and the valuable data preserved and converted. One question which arises is “Are there other important legacy character sets that need to be studied and mapped?” I should be surprised if there were not.

One thing that I have done is to indicate all of the examples of characters which show stacking or inversion, as the ICE project has discussed with regard to the use of alternate format characters like HORIZONTAL JUXTAPOSITIONER (HJP) and VERTICAL SUBORDINATOR (VSB) and ROTATE DEGREES-180 (R180). It is interesting to note that in this coded character set a number of stacked glyphs occur which in this set do not have the unstacked primitives also encoded (these are represented by _____ in the list below). The mappings here are intended to provoke discussion.

$1x068 = 1x067 + \text{VSB} + 1x067$
 $1x06F = 1x06E + \text{VSB} + 1x06E$
 $1x075 = 1x074 + \text{HJP } 1x35A + \text{VSB } 1x074 + \text{HJP } 1x35A$
 $1x07C = 1x07B + \text{VSB} + 1x07B$
 $1x082 = 1x081 + \text{HJP} + 1x35A + \text{HJP} + \text{_____} + 1x081 + \text{HJP} + 1x35A + \text{HJP} + \text{_____}$
 $1x08D = 1x08C + \text{VSB} + 1x08C$
 $1x0C4 = 1x0C4 + \text{HJP} + 1x34D + \text{VSB} + 1x0C4 + \text{HJP} + 1x34D$
 $1x0CE = 1x0CD + \text{R180} + 1x0CD$
 $1x17B = 1x17A + \text{HJP} + \text{_____} + \text{VSB} + 1x17A + \text{HJP} + \text{_____}$
 $1x198 = 1x197 + \text{R180} + 1x197$
 $1x1C9 = 1x1C8 + \text{HJP} + 1x074 + \text{HJP} + 1x35A + \text{VSB} + 1x1C8 + \text{HJP} + 1x074 + \text{HJP} + 1x35A$
 $1x1CA = 1x1C8 + \text{HJP} + \text{_____} + \text{VSB} + 1x1C8 + \text{HJP} + \text{_____}$
 $1x1D2 = 1x1D1 + \text{VSB} + 1x1D1$
 $1x1D6 = 1x1D5 + \text{VSB} + 1x1D5$
 $1x1D7 = 1x1D5 + \text{HJP} + 1x074 + \text{HJP} + 1x35A + \text{VSB} + 1x1D5 + \text{HJP} + 1x074 + \text{HJP} + 1x35A$
 $1x2A8 = 1x2A7 + \text{VSB} + 1x2A7$
 $1x2C9 = 1x288 + \text{VSB} + 1x35A$
 $1x2CA = 1x288 + \text{VSB} + 1x35B$
 $1x32F = 1x32E + \text{VSB} + 1x132E + \text{HJP} + \text{_____}$
 $1x330 = 1x32E + \text{HJP} + 1x35A + \text{VSB} + 1x32E + \text{HJP} + 1x35A$
 $1x332 = 1x331 + \text{VSB} + 1x331 + \text{HJP} + 1x317$

ICE considerations. While I certainly hope that this endeavour will be considered valuable to ICE, the question does arise “Is this kind of contribution valuable given the goals of ICE cuneiform objectives?”. I do have access to some Hittite fonts and believe that investigating their repertoire and coding will be as beneficial as what I have done here.

One thing that can be said is that I am prepared to continue this work to prepare fonts for the publication of the standard. Rick McGowan said to me that he had told Simo Parpola that I might be interested in doing so, but that he did not wish to volunteer me himself. Steve Tinney told me that he has made a Metafont containing “several hundreds” of glyphs and that he had volunteered to help produce fonts as well. To answer his specific question, the format required by UTC and WG2 to publish the standard is TrueType, and we have found that conversion of Metafonts to TrueType is not necessarily simple or very problem-free. It was done for Yi, for instance, but I had to do a fair bit of cleanup on those fonts to make them useful, and at very large point sizes the result is still far from being typographically excellent. Another question is, “Is my font design appealing and do we want it to be the basis for the glyphs we use for the standard?” There are 738 characters in the tables below. How many do we expect? 900? 2000? The Roadmap’s current estimate is 1120 characters.

Bibliography. These are works which happen to be in my collection.

- Borger, Rykle, 1971. *Akkadische Zeichenliste*. (Alter Orient und Altes Testament - Sonderreihe; 6) Neukirchen-Vluyn: Neukirchener Verlag des Erziehungsvereins Neukirchen-Vluyn (ISBN 3 7887 0318 0); [s.l.]: Verlag Butzon & Bercker Kevelaer (ISBN 3 7666 8538 4).
- Forrer, Emil. 1969 (1922). *Die Keilschrift von Boghazköi*. Osnabrück: Otto Zeller.
- von Soden, Wolfram, & Wolfgang Röllig. 1967. *Das akkadische Syllabar*. 2., völlig neubearbeitete Auflage. (Analecta Orientalia; 42) Roma: Pontificium Institutum Biblicum.

Row 1x0: SUMERO-AKKADIAN CUNEIFORM

	x00	x01	x02	x03	x04	x05	x06	x07
0								
1								
2								
3								
4								
5								
6								
7								
8								
9								
A								
B								
C								
D								
E								
F								

G = 00
P = 01

Row 1x0: SUMERO-AKKADIAN CUNEIFORM

	x08	x09	x0A	x0B	x0C	x0D	x0E	x0F
0								
1								
2								
3								
4								
5								
6								
7								
8								
9								
A								
B								
C								
D								
E								
F								

G = 00
P = 01

Row 1x0: SUMERO-AKKADIAN CUNEIFORM

hex	Name
1x080	SUMERO-AKKADIAN CUNEIFORM SIGN C099
1x081	SUMERO-AKKADIAN CUNEIFORM SIGN C099A
1x082	SUMERO-AKKADIAN CUNEIFORM SIGN C099B
1x083	SUMERO-AKKADIAN CUNEIFORM SIGN C100
1x084	SUMERO-AKKADIAN CUNEIFORM SIGN C101
1x085	SUMERO-AKKADIAN CUNEIFORM SIGN C102
1x086	SUMERO-AKKADIAN CUNEIFORM SIGN C103
1x087	SUMERO-AKKADIAN CUNEIFORM SIGN C103A
1x088	SUMERO-AKKADIAN CUNEIFORM SIGN C103B
1x089	SUMERO-AKKADIAN CUNEIFORM SIGN C103C
1x08A	SUMERO-AKKADIAN CUNEIFORM SIGN C104
1x08B	SUMERO-AKKADIAN CUNEIFORM SIGN C104A
1x08C	SUMERO-AKKADIAN CUNEIFORM SIGN C105
1x08D	SUMERO-AKKADIAN CUNEIFORM SIGN C105A
1x08E	SUMERO-AKKADIAN CUNEIFORM SIGN C106
1x08F	SUMERO-AKKADIAN CUNEIFORM SIGN C107
1x090	SUMERO-AKKADIAN CUNEIFORM SIGN C108
1x091	SUMERO-AKKADIAN CUNEIFORM SIGN C108A
1x092	SUMERO-AKKADIAN CUNEIFORM SIGN C109
1x093	SUMERO-AKKADIAN CUNEIFORM SIGN C110
1x094	SUMERO-AKKADIAN CUNEIFORM SIGN C111
1x095	SUMERO-AKKADIAN CUNEIFORM SIGN C112
1x096	SUMERO-AKKADIAN CUNEIFORM SIGN C113
1x097	SUMERO-AKKADIAN CUNEIFORM SIGN C114
1x098	SUMERO-AKKADIAN CUNEIFORM SIGN C115
1x099	SUMERO-AKKADIAN CUNEIFORM SIGN C116
1x09A	SUMERO-AKKADIAN CUNEIFORM SIGN C116A
1x09B	SUMERO-AKKADIAN CUNEIFORM SIGN C117
1x09C	SUMERO-AKKADIAN CUNEIFORM SIGN C118
1x09D	SUMERO-AKKADIAN CUNEIFORM SIGN C119
1x09E	SUMERO-AKKADIAN CUNEIFORM SIGN C121
1x09F	SUMERO-AKKADIAN CUNEIFORM SIGN C122
1x0A0	SUMERO-AKKADIAN CUNEIFORM SIGN C122A
1x0A1	SUMERO-AKKADIAN CUNEIFORM SIGN C122B
1x0A2	SUMERO-AKKADIAN CUNEIFORM SIGN C123
1x0A3	SUMERO-AKKADIAN CUNEIFORM SIGN C123A
1x0A4	SUMERO-AKKADIAN CUNEIFORM SIGN C124
1x0A5	SUMERO-AKKADIAN CUNEIFORM SIGN C124A
1x0A6	SUMERO-AKKADIAN CUNEIFORM SIGN C124B
1x0A7	SUMERO-AKKADIAN CUNEIFORM SIGN C125
1x0A8	SUMERO-AKKADIAN CUNEIFORM SIGN C125A
1x0A9	SUMERO-AKKADIAN CUNEIFORM SIGN C125B
1x0AA	SUMERO-AKKADIAN CUNEIFORM SIGN C125C
1x0AB	SUMERO-AKKADIAN CUNEIFORM SIGN C125D
1x0AC	SUMERO-AKKADIAN CUNEIFORM SIGN C125E
1x0AD	SUMERO-AKKADIAN CUNEIFORM SIGN C126
1x0AE	SUMERO-AKKADIAN CUNEIFORM SIGN C128
1x0AF	SUMERO-AKKADIAN CUNEIFORM SIGN C128A
1x0B0	SUMERO-AKKADIAN CUNEIFORM SIGN C129
1x0B1	SUMERO-AKKADIAN CUNEIFORM SIGN C129A
1x0B2	SUMERO-AKKADIAN CUNEIFORM SIGN C130
1x0B3	SUMERO-AKKADIAN CUNEIFORM SIGN C131
1x0B4	SUMERO-AKKADIAN CUNEIFORM SIGN C131A
1x0B5	SUMERO-AKKADIAN CUNEIFORM SIGN C132
1x0B6	SUMERO-AKKADIAN CUNEIFORM SIGN C133
1x0B7	SUMERO-AKKADIAN CUNEIFORM SIGN C133A
1x0B8	SUMERO-AKKADIAN CUNEIFORM SIGN C134
1x0B9	SUMERO-AKKADIAN CUNEIFORM SIGN C138
1x0BA	SUMERO-AKKADIAN CUNEIFORM SIGN C138A
1x0BB	SUMERO-AKKADIAN CUNEIFORM SIGN C138B
1x0BC	SUMERO-AKKADIAN CUNEIFORM SIGN C139
1x0BD	SUMERO-AKKADIAN CUNEIFORM SIGN C140
1x0BE	SUMERO-AKKADIAN CUNEIFORM SIGN C141
1x0BF	SUMERO-AKKADIAN CUNEIFORM SIGN C141A
1x0C0	SUMERO-AKKADIAN CUNEIFORM SIGN C142
1x0C1	SUMERO-AKKADIAN CUNEIFORM SIGN C142A
1x0C2	SUMERO-AKKADIAN CUNEIFORM SIGN C143
1x0C3	SUMERO-AKKADIAN CUNEIFORM SIGN C144
1x0C4	SUMERO-AKKADIAN CUNEIFORM SIGN C144A
1x0C5	SUMERO-AKKADIAN CUNEIFORM SIGN C144B
1x0C6	SUMERO-AKKADIAN CUNEIFORM SIGN C145
1x0C7	SUMERO-AKKADIAN CUNEIFORM SIGN C146
1x0C8	SUMERO-AKKADIAN CUNEIFORM SIGN C147
1x0C9	SUMERO-AKKADIAN CUNEIFORM SIGN C148
1x0CA	SUMERO-AKKADIAN CUNEIFORM SIGN C149
1x0CB	SUMERO-AKKADIAN CUNEIFORM SIGN C150
1x0CC	SUMERO-AKKADIAN CUNEIFORM SIGN C150A
1x0CD	SUMERO-AKKADIAN CUNEIFORM SIGN C151
1x0CE	SUMERO-AKKADIAN CUNEIFORM SIGN C151A
1x0CF	SUMERO-AKKADIAN CUNEIFORM SIGN C152
1x0D0	SUMERO-AKKADIAN CUNEIFORM SIGN C152A
1x0D1	SUMERO-AKKADIAN CUNEIFORM SIGN C152B
1x0D2	SUMERO-AKKADIAN CUNEIFORM SIGN C154
1x0D3	SUMERO-AKKADIAN CUNEIFORM SIGN C155
1x0D4	SUMERO-AKKADIAN CUNEIFORM SIGN C156
1x0D5	SUMERO-AKKADIAN CUNEIFORM SIGN C157
1x0D6	SUMERO-AKKADIAN CUNEIFORM SIGN C158
1x0D7	SUMERO-AKKADIAN CUNEIFORM SIGN C159
1x0D8	SUMERO-AKKADIAN CUNEIFORM SIGN C164

hex	Name
1x0D9	SUMERO-AKKADIAN CUNEIFORM SIGN C165
1x0DA	SUMERO-AKKADIAN CUNEIFORM SIGN C166
1x0DB	SUMERO-AKKADIAN CUNEIFORM SIGN C166A
1x0DC	SUMERO-AKKADIAN CUNEIFORM SIGN C166B
1x0DD	SUMERO-AKKADIAN CUNEIFORM SIGN C167
1x0DE	SUMERO-AKKADIAN CUNEIFORM SIGN C167A
1x0DF	SUMERO-AKKADIAN CUNEIFORM SIGN C167B
1x0E0	SUMERO-AKKADIAN CUNEIFORM SIGN C168
1x0E1	SUMERO-AKKADIAN CUNEIFORM SIGN C169
1x0E2	SUMERO-AKKADIAN CUNEIFORM SIGN C170
1x0E3	SUMERO-AKKADIAN CUNEIFORM SIGN C171
1x0E4	SUMERO-AKKADIAN CUNEIFORM SIGN C172
1x0E5	SUMERO-AKKADIAN CUNEIFORM SIGN C173
1x0E6	SUMERO-AKKADIAN CUNEIFORM SIGN C174
1x0E7	SUMERO-AKKADIAN CUNEIFORM SIGN C175
1x0E8	SUMERO-AKKADIAN CUNEIFORM SIGN C176
1x0E9	SUMERO-AKKADIAN CUNEIFORM SIGN C176A
1x0EA	SUMERO-AKKADIAN CUNEIFORM SIGN C181
1x0EB	SUMERO-AKKADIAN CUNEIFORM SIGN C181A
1x0EC	SUMERO-AKKADIAN CUNEIFORM SIGN C182
1x0ED	SUMERO-AKKADIAN CUNEIFORM SIGN C183
1x0EE	SUMERO-AKKADIAN CUNEIFORM SIGN C184
1x0EF	SUMERO-AKKADIAN CUNEIFORM SIGN C185
1x0F0	SUMERO-AKKADIAN CUNEIFORM SIGN C185A
1x0F1	SUMERO-AKKADIAN CUNEIFORM SIGN C186
1x0F2	SUMERO-AKKADIAN CUNEIFORM SIGN C187
1x0F3	SUMERO-AKKADIAN CUNEIFORM SIGN C187A
1x0F4	SUMERO-AKKADIAN CUNEIFORM SIGN C187B
1x0F5	SUMERO-AKKADIAN CUNEIFORM SIGN C190
1x0F6	SUMERO-AKKADIAN CUNEIFORM SIGN C190A
1x0F7	SUMERO-AKKADIAN CUNEIFORM SIGN C190B
1x0F8	SUMERO-AKKADIAN CUNEIFORM SIGN C191
1x0F9	SUMERO-AKKADIAN CUNEIFORM SIGN C191A
1x0FA	SUMERO-AKKADIAN CUNEIFORM SIGN C192
1x0FB	SUMERO-AKKADIAN CUNEIFORM SIGN C194
1x0FC	SUMERO-AKKADIAN CUNEIFORM SIGN C195
1x0FD	SUMERO-AKKADIAN CUNEIFORM SIGN C195A
1x0FE	SUMERO-AKKADIAN CUNEIFORM SIGN C196
1x0FF	SUMERO-AKKADIAN CUNEIFORM SIGN C198

Row 1x1: SUMERO-AKKADIAN CUNEIFORM

	x10	x11	x12	x13	x14	x15	x16	x17
0								
1								
2								
3								
4								
5								
6								
7								
8								
9								
A								
B								
C								
D								
E								
F								

G = 00
1x0P =
02

Row 1x1: SUMERO-AKKADIAN CUNEIFORM

	x18	x19	x1A	x1B	x1C	x1D	x1E	x1F
0								
1								
2								
3								
4								
5								
6								
7								
8								
9								
A								
B								
C								
D								
E								
F								

G = 00
P = 01

Row 1x1: SUMERO-AKKADIAN CUNEIFORM

hex	Name
1x180	SUMERO-AKKADIAN CUNEIFORM SIGN C313
1x181	SUMERO-AKKADIAN CUNEIFORM SIGN C313A
1x182	SUMERO-AKKADIAN CUNEIFORM SIGN C314
1x183	SUMERO-AKKADIAN CUNEIFORM SIGN C315
1x184	SUMERO-AKKADIAN CUNEIFORM SIGN C316
1x185	SUMERO-AKKADIAN CUNEIFORM SIGN C317
1x186	SUMERO-AKKADIAN CUNEIFORM SIGN C318
1x187	SUMERO-AKKADIAN CUNEIFORM SIGN C319
1x188	SUMERO-AKKADIAN CUNEIFORM SIGN C319A
1x189	SUMERO-AKKADIAN CUNEIFORM SIGN C320
1x18A	SUMERO-AKKADIAN CUNEIFORM SIGN C321
1x18B	SUMERO-AKKADIAN CUNEIFORM SIGN C322
1x18C	SUMERO-AKKADIAN CUNEIFORM SIGN C323
1x18D	SUMERO-AKKADIAN CUNEIFORM SIGN C324
1x18E	SUMERO-AKKADIAN CUNEIFORM SIGN C325
1x18F	SUMERO-AKKADIAN CUNEIFORM SIGN C325A
1x190	SUMERO-AKKADIAN CUNEIFORM SIGN C325B
1x191	SUMERO-AKKADIAN CUNEIFORM SIGN C326
1x192	SUMERO-AKKADIAN CUNEIFORM SIGN C326A
1x193	SUMERO-AKKADIAN CUNEIFORM SIGN C327
1x194	SUMERO-AKKADIAN CUNEIFORM SIGN C328
1x195	SUMERO-AKKADIAN CUNEIFORM SIGN C329
1x196	SUMERO-AKKADIAN CUNEIFORM SIGN C329A
1x197	SUMERO-AKKADIAN CUNEIFORM SIGN C330
1x198	SUMERO-AKKADIAN CUNEIFORM SIGN C330A
1x199	SUMERO-AKKADIAN CUNEIFORM SIGN C330B
1x19A	SUMERO-AKKADIAN CUNEIFORM SIGN C331
1x19B	SUMERO-AKKADIAN CUNEIFORM SIGN C331A
1x19C	SUMERO-AKKADIAN CUNEIFORM SIGN C331B
1x19D	SUMERO-AKKADIAN CUNEIFORM SIGN C331C
1x19E	SUMERO-AKKADIAN CUNEIFORM SIGN C331D
1x19F	SUMERO-AKKADIAN CUNEIFORM SIGN C331E
1x1A0	SUMERO-AKKADIAN CUNEIFORM SIGN C332
1x1A1	SUMERO-AKKADIAN CUNEIFORM SIGN C333
1x1A2	SUMERO-AKKADIAN CUNEIFORM SIGN C334
1x1A3	SUMERO-AKKADIAN CUNEIFORM SIGN C335
1x1A4	SUMERO-AKKADIAN CUNEIFORM SIGN C336
1x1A5	SUMERO-AKKADIAN CUNEIFORM SIGN C337
1x1A6	SUMERO-AKKADIAN CUNEIFORM SIGN C338
1x1A7	SUMERO-AKKADIAN CUNEIFORM SIGN C339
1x1A8	SUMERO-AKKADIAN CUNEIFORM SIGN C340
1x1A9	SUMERO-AKKADIAN CUNEIFORM SIGN C341
1x1AA	SUMERO-AKKADIAN CUNEIFORM SIGN C342
1x1AB	SUMERO-AKKADIAN CUNEIFORM SIGN C343
1x1AC	SUMERO-AKKADIAN CUNEIFORM SIGN C344
1x1AD	SUMERO-AKKADIAN CUNEIFORM SIGN C345
1x1AE	SUMERO-AKKADIAN CUNEIFORM SIGN C346
1x1AF	SUMERO-AKKADIAN CUNEIFORM SIGN C347
1x1B0	SUMERO-AKKADIAN CUNEIFORM SIGN C348
1x1B1	SUMERO-AKKADIAN CUNEIFORM SIGN C349
1x1B2	SUMERO-AKKADIAN CUNEIFORM SIGN C350
1x1B3	SUMERO-AKKADIAN CUNEIFORM SIGN C351
1x1B4	SUMERO-AKKADIAN CUNEIFORM SIGN C352
1x1B5	SUMERO-AKKADIAN CUNEIFORM SIGN C353
1x1B6	SUMERO-AKKADIAN CUNEIFORM SIGN C354
1x1B7	SUMERO-AKKADIAN CUNEIFORM SIGN C354A
1x1B8	SUMERO-AKKADIAN CUNEIFORM SIGN C354B
1x1B9	SUMERO-AKKADIAN CUNEIFORM SIGN C354C
1x1BA	SUMERO-AKKADIAN CUNEIFORM SIGN C354D
1x1BB	SUMERO-AKKADIAN CUNEIFORM SIGN C355
1x1BC	SUMERO-AKKADIAN CUNEIFORM SIGN C356
1x1BD	SUMERO-AKKADIAN CUNEIFORM SIGN C358
1x1BE	SUMERO-AKKADIAN CUNEIFORM SIGN C359
1x1BF	SUMERO-AKKADIAN CUNEIFORM SIGN C360
1x1C0	SUMERO-AKKADIAN CUNEIFORM SIGN C361
1x1C1	SUMERO-AKKADIAN CUNEIFORM SIGN C362
1x1C2	SUMERO-AKKADIAN CUNEIFORM SIGN C363
1x1C3	SUMERO-AKKADIAN CUNEIFORM SIGN C363A
1x1C4	SUMERO-AKKADIAN CUNEIFORM SIGN C363B
1x1C5	SUMERO-AKKADIAN CUNEIFORM SIGN C364
1x1C6	SUMERO-AKKADIAN CUNEIFORM SIGN C365
1x1C7	SUMERO-AKKADIAN CUNEIFORM SIGN C366
1x1C8	SUMERO-AKKADIAN CUNEIFORM SIGN C367
1x1C9	SUMERO-AKKADIAN CUNEIFORM SIGN C369
1x1CA	SUMERO-AKKADIAN CUNEIFORM SIGN C370
1x1CB	SUMERO-AKKADIAN CUNEIFORM SIGN C371
1x1CC	SUMERO-AKKADIAN CUNEIFORM SIGN C371A
1x1CD	SUMERO-AKKADIAN CUNEIFORM SIGN C371B
1x1CE	SUMERO-AKKADIAN CUNEIFORM SIGN C371C
1x1CF	SUMERO-AKKADIAN CUNEIFORM SIGN C372
1x1D0	SUMERO-AKKADIAN CUNEIFORM SIGN C373
1x1D1	SUMERO-AKKADIAN CUNEIFORM SIGN C374
1x1D2	SUMERO-AKKADIAN CUNEIFORM SIGN C374A
1x1D3	SUMERO-AKKADIAN CUNEIFORM SIGN C374B
1x1D4	SUMERO-AKKADIAN CUNEIFORM SIGN C374C
1x1D5	SUMERO-AKKADIAN CUNEIFORM SIGN C375
1x1D6	SUMERO-AKKADIAN CUNEIFORM SIGN C375A
1x1D7	SUMERO-AKKADIAN CUNEIFORM SIGN C375B
1x1D8	SUMERO-AKKADIAN CUNEIFORM SIGN C376

Group 00

hex	Name
1x1D9	SUMERO-AKKADIAN CUNEIFORM SIGN C376A
1x1DA	SUMERO-AKKADIAN CUNEIFORM SIGN C377
1x1DB	SUMERO-AKKADIAN CUNEIFORM SIGN C377A
1x1DC	SUMERO-AKKADIAN CUNEIFORM SIGN C378
1x1DD	SUMERO-AKKADIAN CUNEIFORM SIGN C379
1x1DE	SUMERO-AKKADIAN CUNEIFORM SIGN C379A
1x1DF	SUMERO-AKKADIAN CUNEIFORM SIGN C380
1x1E0	SUMERO-AKKADIAN CUNEIFORM SIGN C381
1x1E1	SUMERO-AKKADIAN CUNEIFORM SIGN C381A
1x1E2	SUMERO-AKKADIAN CUNEIFORM SIGN C382
1x1E3	SUMERO-AKKADIAN CUNEIFORM SIGN C383
1x1E4	SUMERO-AKKADIAN CUNEIFORM SIGN C384
1x1E5	SUMERO-AKKADIAN CUNEIFORM SIGN C385
1x1E6	SUMERO-AKKADIAN CUNEIFORM SIGN C388
1x1E7	SUMERO-AKKADIAN CUNEIFORM SIGN C389
1x1E8	SUMERO-AKKADIAN CUNEIFORM SIGN C390
1x1E9	SUMERO-AKKADIAN CUNEIFORM SIGN C391
1x1EA	SUMERO-AKKADIAN CUNEIFORM SIGN C392
1x1EB	SUMERO-AKKADIAN CUNEIFORM SIGN C393
1x1EC	SUMERO-AKKADIAN CUNEIFORM SIGN C394
1x1ED	SUMERO-AKKADIAN CUNEIFORM SIGN C394A
1x1EE	SUMERO-AKKADIAN CUNEIFORM SIGN C394B
1x1EF	SUMERO-AKKADIAN CUNEIFORM SIGN C394C
1x1F0	SUMERO-AKKADIAN CUNEIFORM SIGN C395
1x1F1	SUMERO-AKKADIAN CUNEIFORM SIGN C395A
1x1F2	SUMERO-AKKADIAN CUNEIFORM SIGN C396
1x1F3	SUMERO-AKKADIAN CUNEIFORM SIGN C396A
1x1F4	SUMERO-AKKADIAN CUNEIFORM SIGN C397
1x1F5	SUMERO-AKKADIAN CUNEIFORM SIGN C398
1x1F6	SUMERO-AKKADIAN CUNEIFORM SIGN C398A
1x1F7	SUMERO-AKKADIAN CUNEIFORM SIGN C398B
1x1F8	SUMERO-AKKADIAN CUNEIFORM SIGN C399
1x1F9	SUMERO-AKKADIAN CUNEIFORM SIGN C399A
1x1FA	SUMERO-AKKADIAN CUNEIFORM SIGN C400
1x1FB	SUMERO-AKKADIAN CUNEIFORM SIGN C401
1x1FC	SUMERO-AKKADIAN CUNEIFORM SIGN C402
1x1FD	SUMERO-AKKADIAN CUNEIFORM SIGN C403
1x1FE	SUMERO-AKKADIAN CUNEIFORM SIGN C403A
1x1FF	SUMERO-AKKADIAN CUNEIFORM SIGN C403B

Plane 01

Row 1x1

Row 1x2: SUMERO-AKKADIAN CUNEIFORM

	x20	x21	x22	x23	x24	x25	x26	x27
0								
1								
2								
3								
4								
5								
6								
7								
8								
9								
A								
B								
C								
D								
E								
F								

G = 00
P = 01

Row 1x2: SUMERO-AKKADIAN CUNEIFORM

	x28	x29	x2A	x2B	x2C	x2D	x2E	x2F
0								
1								
2								
3								
4								
5								
6								
7								
8								
9								
A								
B								
C								
D								
E								
F								

G = 00
P = 01

Row 1x2: SUMERO-AKKADIAN CUNEIFORM

hex	Name
1x280	SUMERO-AKKADIAN CUNEIFORM SIGN C525
1x281	SUMERO-AKKADIAN CUNEIFORM SIGN C526
1x282	SUMERO-AKKADIAN CUNEIFORM SIGN C527
1x283	SUMERO-AKKADIAN CUNEIFORM SIGN C528
1x284	SUMERO-AKKADIAN CUNEIFORM SIGN C529
1x285	SUMERO-AKKADIAN CUNEIFORM SIGN C530
1x286	SUMERO-AKKADIAN CUNEIFORM SIGN C532
1x287	SUMERO-AKKADIAN CUNEIFORM SIGN C533
1x288	SUMERO-AKKADIAN CUNEIFORM SIGN C533A
1x289	SUMERO-AKKADIAN CUNEIFORM SIGN C535
1x28A	SUMERO-AKKADIAN CUNEIFORM SIGN C536
1x28B	SUMERO-AKKADIAN CUNEIFORM SIGN C537
1x28C	SUMERO-AKKADIAN CUNEIFORM SIGN C537A
1x28D	SUMERO-AKKADIAN CUNEIFORM SIGN C537B
1x28E	SUMERO-AKKADIAN CUNEIFORM SIGN C537C
1x28F	SUMERO-AKKADIAN CUNEIFORM SIGN C538
1x290	SUMERO-AKKADIAN CUNEIFORM SIGN C539
1x291	SUMERO-AKKADIAN CUNEIFORM SIGN C540
1x292	SUMERO-AKKADIAN CUNEIFORM SIGN C541
1x293	SUMERO-AKKADIAN CUNEIFORM SIGN C542
1x294	SUMERO-AKKADIAN CUNEIFORM SIGN C543
1x295	SUMERO-AKKADIAN CUNEIFORM SIGN C543A
1x296	SUMERO-AKKADIAN CUNEIFORM SIGN C544
1x297	SUMERO-AKKADIAN CUNEIFORM SIGN C545
1x298	SUMERO-AKKADIAN CUNEIFORM SIGN C546
1x299	SUMERO-AKKADIAN CUNEIFORM SIGN C546A
1x29A	SUMERO-AKKADIAN CUNEIFORM SIGN C546B
1x29B	SUMERO-AKKADIAN CUNEIFORM SIGN C547
1x29C	SUMERO-AKKADIAN CUNEIFORM SIGN C548
1x29D	SUMERO-AKKADIAN CUNEIFORM SIGN C549
1x29E	SUMERO-AKKADIAN CUNEIFORM SIGN C550
1x29F	SUMERO-AKKADIAN CUNEIFORM SIGN C551
1x2A0	SUMERO-AKKADIAN CUNEIFORM SIGN C552
1x2A1	SUMERO-AKKADIAN CUNEIFORM SIGN C553
1x2A2	SUMERO-AKKADIAN CUNEIFORM SIGN C554
1x2A3	SUMERO-AKKADIAN CUNEIFORM SIGN C555
1x2A4	SUMERO-AKKADIAN CUNEIFORM SIGN C556
1x2A5	SUMERO-AKKADIAN CUNEIFORM SIGN C557
1x2A6	SUMERO-AKKADIAN CUNEIFORM SIGN C558
1x2A7	SUMERO-AKKADIAN CUNEIFORM SIGN C559
1x2A8	SUMERO-AKKADIAN CUNEIFORM SIGN C560
1x2A9	SUMERO-AKKADIAN CUNEIFORM SIGN C561
1x2AA	SUMERO-AKKADIAN CUNEIFORM SIGN C562
1x2AB	SUMERO-AKKADIAN CUNEIFORM SIGN C562A
1x2AC	SUMERO-AKKADIAN CUNEIFORM SIGN C563
1x2AD	SUMERO-AKKADIAN CUNEIFORM SIGN C564
1x2AE	SUMERO-AKKADIAN CUNEIFORM SIGN C565
1x2AF	SUMERO-AKKADIAN CUNEIFORM SIGN C566
1x2B0	SUMERO-AKKADIAN CUNEIFORM SIGN C566A
1x2B1	SUMERO-AKKADIAN CUNEIFORM SIGN C567
1x2B2	SUMERO-AKKADIAN CUNEIFORM SIGN C568
1x2B3	SUMERO-AKKADIAN CUNEIFORM SIGN C569
1x2B4	SUMERO-AKKADIAN CUNEIFORM SIGN C570
1x2B5	SUMERO-AKKADIAN CUNEIFORM SIGN C571
1x2B6	SUMERO-AKKADIAN CUNEIFORM SIGN C572
1x2B7	SUMERO-AKKADIAN CUNEIFORM SIGN C573
1x2B8	SUMERO-AKKADIAN CUNEIFORM SIGN C574
1x2B9	SUMERO-AKKADIAN CUNEIFORM SIGN C575
1x2BA	SUMERO-AKKADIAN CUNEIFORM SIGN C576
1x2BB	SUMERO-AKKADIAN CUNEIFORM SIGN C577
1x2BC	SUMERO-AKKADIAN CUNEIFORM SIGN C577A
1x2BD	SUMERO-AKKADIAN CUNEIFORM SIGN C579
1x2BE	SUMERO-AKKADIAN CUNEIFORM SIGN C579A
1x2BF	SUMERO-AKKADIAN CUNEIFORM SIGN C579B
1x2C0	SUMERO-AKKADIAN CUNEIFORM SIGN C579C
1x2C1	SUMERO-AKKADIAN CUNEIFORM SIGN C579D
1x2C2	SUMERO-AKKADIAN CUNEIFORM SIGN C579E
1x2C3	SUMERO-AKKADIAN CUNEIFORM SIGN C579F
1x2C4	SUMERO-AKKADIAN CUNEIFORM SIGN C579G
1x2C5	SUMERO-AKKADIAN CUNEIFORM SIGN C580
1x2C6	SUMERO-AKKADIAN CUNEIFORM SIGN C581
1x2C7	SUMERO-AKKADIAN CUNEIFORM SIGN C582
1x2C8	SUMERO-AKKADIAN CUNEIFORM SIGN C583
1x2C9	SUMERO-AKKADIAN CUNEIFORM SIGN C584
1x2CA	SUMERO-AKKADIAN CUNEIFORM SIGN C585
1x2CB	SUMERO-AKKADIAN CUNEIFORM SIGN C585A
1x2CC	SUMERO-AKKADIAN CUNEIFORM SIGN C585B
1x2CD	SUMERO-AKKADIAN CUNEIFORM SIGN C586
1x2CE	SUMERO-AKKADIAN CUNEIFORM SIGN C589
1x2CF	SUMERO-AKKADIAN CUNEIFORM SIGN C590
1x2D0	SUMERO-AKKADIAN CUNEIFORM SIGN C590A
1x2D1	SUMERO-AKKADIAN CUNEIFORM SIGN C591
1x2D2	SUMERO-AKKADIAN CUNEIFORM SIGN C591A
1x2D3	SUMERO-AKKADIAN CUNEIFORM SIGN C592
1x2D4	SUMERO-AKKADIAN CUNEIFORM SIGN C593
1x2D5	SUMERO-AKKADIAN CUNEIFORM SIGN C593A
1x2D6	SUMERO-AKKADIAN CUNEIFORM SIGN C593B
1x2D7	SUMERO-AKKADIAN CUNEIFORM SIGN C594
1x2D8	SUMERO-AKKADIAN CUNEIFORM SIGN C595

hex	Name
1x2D9	SUMERO-AKKADIAN CUNEIFORM SIGN C596
1x2DA	SUMERO-AKKADIAN CUNEIFORM SIGN C597
1x2DB	SUMERO-AKKADIAN CUNEIFORM SIGN C598
1x2DC	SUMERO-AKKADIAN CUNEIFORM SIGN C598A
1x2DD	SUMERO-AKKADIAN CUNEIFORM SIGN C598B
1x2DE	SUMERO-AKKADIAN CUNEIFORM SIGN C598C
1x2DF	SUMERO-AKKADIAN CUNEIFORM SIGN C598D
1x2E0	SUMERO-AKKADIAN CUNEIFORM SIGN C598E
1x2E1	SUMERO-AKKADIAN CUNEIFORM SIGN C598F
1x2E2	(This position shall not be used)
1x2E3	(This position shall not be used)
1x2E4	(This position shall not be used)
1x2E5	(This position shall not be used)
1x2E6	(This position shall not be used)
1x2E7	(This position shall not be used)
1x2E8	(This position shall not be used)
1x2E9	(This position shall not be used)
1x2EA	(This position shall not be used)
1x2EB	(This position shall not be used)
1x2EC	(This position shall not be used)
1x2ED	(This position shall not be used)
1x2EE	(This position shall not be used)
1x2EF	(This position shall not be used)
1x2F0	(This position shall not be used)
1x2F1	(This position shall not be used)
1x2F2	(This position shall not be used)
1x2F3	(This position shall not be used)
1x2F4	(This position shall not be used)
1x2F5	(This position shall not be used)
1x2F6	(This position shall not be used)
1x2F7	(This position shall not be used)
1x2F8	(This position shall not be used)
1x2F9	SUMERO-AKKADIAN FULL ERASURE
1x2FA	SUMERO-AKKADIAN COMBINING FRONT ERASURE
1x2FB	SUMERO-AKKADIAN COMBINING UPPER FRONT ERASURE
1x2FC	SUMERO-AKKADIAN COMBINING LOWER FRONT ERASURE
1x2FD	SUMERO-AKKADIAN COMBINING REAR ERASURE
1x2FE	SUMERO-AKKADIAN COMBINING UPPER REAR ERASURE
1x2FF	SUMERO-AKKADIAN COMBINING LOWER REAR ERASURE