PRINTRONIX®

ACA Emulation Programmer's Reference Manual

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1 *Introduction*

About This Guide

This Arabization Guide provides you with information necessary to understand, use, and control your printer for bilingual (Arabic/Latin) printing. This information is common to all Printronix Line Matrix Arabic printers.
The Arabization adapter enables Latin printers to produce Arabic text. It provides Latin printers with a true emulation of all bilingual operations available.

Conventions

The following conventions are used in this document:

1- Characters sent to the printer, look like this:

Char. Sent 

These characters arrive sequentially from left to right at the printer.

2- The output of the printer on paper, looks like this:

Printout HELLO

3- The abbreviation "SP" stands for the "SPACE" character.

4-When the name of a character, or its abbreviation, is used to indicate that the character was sent to the printer, then the name, or abbreviation, is enclosed between angle brackets, "<>". For example, a "<SP>" indicates a space character.

Introduction

Arabic is an alphabetical language that consists of 28 characters. It has punctuation marks equivalent to those in English, except that they differ in shape. Numbers are presented using Hindi numerals. This might be confusing since Latin languages use Arabic numerals. Moreover, Arabic numerals are used in some Arab countries in North Africa. Arabic characters are used, with minor changes, in many languages other than Arabic. Among these languages are Farsi, Urdu, Kurdish, and Pashto.

In the rest of this chapter we will provide an overview of Arabic characters and how they are different from Latin characters.

Arabic and Latin Scripts

There are many differences between Arabic and Latin text. The most obvious one is the shape of their characters. The other differences include:

1- **Presentation Direction:** Arabic is written from right to left. Thus, the presentation direction, which is the physical forward and backward directions, is opposite to that in Latin languages. The presentation direction affects some editing functions such as Back Space, Tab, and Carriage Return.

2- **Ligature:** Arabic characters are joint together within a word. It is not possible to write an Arabic word without ligation.

   When a character is joint to others, its shape changes depending on the character's position in a word. The position can be either initial, medial, final, or alone. Therefore, a character may have up to four different shapes.

3- **Diacritics:** there are eight diacritics in Arabic: fatha, kasra, dhamma, sukoon, tanween fath, tanween kasr, tanween dhamm, and shadda. They may appear with almost any character. Diacritics are usually omitted in Arabic text. However, it is necessary to use them in cases where their absence obscures the meaning of a word.

2 What is Arabization?

Introduction

This chapter describes the principle of transparent Arabization and how your printer, terminal, and software operate in a *transparent Arabization* environment.

The design of your Printronix Line Matrix Arabic printer is based on the principle of transparent Arabization. Transparent Arabization is a layer within an I/O device (printer, terminal, etc.) that enables systems and applications, designed originally for Latin languages, to handle Arabic text in a similar way they handle Latin text. It is the responsibility of this layer to handle Arabic language peculiarities. Latin applications will not be aware of this layer. Thus, Arabization is transparent to these applications. Figure 2.1 depicts a typical Arabization environment where Latin software is used to process Arabic text.

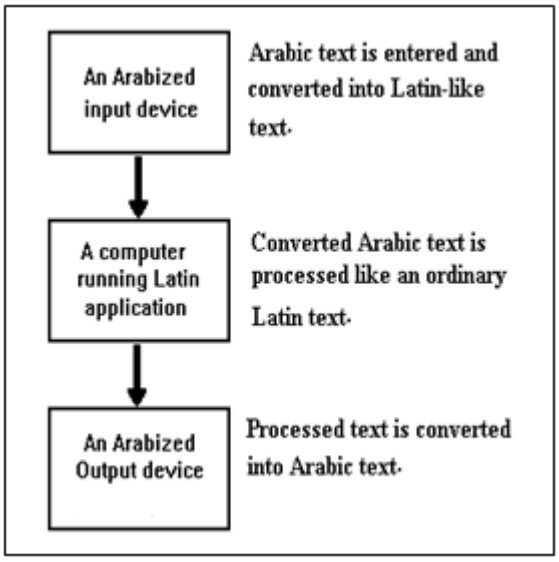


Figure 2.1 A typical Arabization environment

Arabization Mechanisms

There are several methods that implement the **Arabization** layer in the input and output devices. These methods are called mechanisms. For compatibility with existing systems, Printronix Line Matrix Arabic printers support many of these Arabization mechanisms. Refer to Chapter 3 for more details on this subject.

7-Bit with SWCs (balanced/unbalanced)
8-Bit with SWCs (balanced/unbalanced)
7-Bit with Escape Sequences
8-Bit with Escape Sequences
8-Bit Pure
8-Bit Neutral

Table 2.1 Supported mechanisms

Your Arabization Environment

Your printer is part of your Arabization environment. It enables you to have printouts of Arabic and Latin text. In order to have meaningful Arabic printouts, both of the printer and the input device, see Figure 2.1, must use the same mechanism. We advise you to use a consistent mechanism for all your applications. This will save you time in changing setups every time you change an application. Equally important is to use a consistent code set in both of your input and output devices (see next section).

Code Sets

Computers and printers use codes (numbers) to represent alphanumeric characters. Every character is identified by its unique code.
Standard sets of codes such as ASCII have been established. The ASCII code set has codes for upper-case and lower-case English characters, numbers, punctuation marks, symbol, and control characters such as Line Feed and Carriage Return.

Code sets are typically 7-bit or 8-bit, defining 128 or 256 characters, respectively. A complete list of all characters in a code set and their corresponding codes is called a code set table or code page.

There are many Arabic code sets. Most of them are supported by Printronix Line Matrix Arabic printers for compatibility with existing systems. Under normal operations, your printer uses two code sets, one for Latin and one for Arabic. By convention, these code sets are called left side code set and right side code set, respectively.

Table 2.2 shows the code sets supported by Printronix Line Matrix Arabic printers. The first column of the table has the ID number (or character), which is used internally by the printer to identify a code set. The second column contains the corresponding code set. Code sets with 256 characters have two different ID numbers. The first ID number represent the lower part of the code set, i.e., the first 128 characters. The second ID number represents the upper part of the code set. The lower part of most of the 256-character code sets, in Table 2.2, is the same as the ASCII code set. For these code sets only the upper part is listed. Refer to section Setting Code Sets, Chapter 3, for more information on code sets.

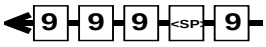
ID	Code Set
A	AMEER
B	AL-ARABI
C	SEDCO (ESPRIT)
D	BEHIVE
E	ZENTIC
F	EMULOG
G	ASMO-449
H	ASMO-708
I	IBM LS upper
J	NAFITHA International upper
K	Sakhr upper
L	WINDOWS
M	WANG
N	MA/1
O	MA/2
P	OLD BEHIVE
0	ASCII
1	IBM 437 lower
2	IBM 437 upper
3	IBM 850 upper
4	IBM 860 upper
5	IBM 863 upper
6	IBM 865 upper
7	IBM 864 lower
8	DEC MCS upper
9	ISO-Latin 1 upper
10	IBM XBASIC lower
18	User Defined left
22	ASCII French A
23	ASCII French B
24	ASCII French Canadian
50	ARCII
51	ASMO-449
52	CODAR-UFD
54	COMTERM 341

ID	Code Set
55	COMTERM 541
56	User Defined right
58	COMTERM 348
59	DATA GENERAL
62	ASMO-449/PLUS
63	DEC/8/ASMO
64	AL-ARABI
71	IBM XBASIC upper
72	IBM APC upper
74	ICL CODAR
77	ICL ASMO-708
78	ASMO-708
79	A-DOS 709 upper
80	A-DOS 710 upper/96
81	A-DOS 711 upper
82	A-DOS 720 upper
83	A-DOS 708 upper
84	A-DOS 864 upper
87	ASMO-708/Plus
88	DEC MCS mirror
89	ISO Latin mirror
90	A-DOS 710/128
91	NCR 96
92	NCR 64
93	NCR-ASMO-708
94	HP Arabic-8
95	HP Enhanced lower
96	HP Enhanced upper
97	French-1/ASMO-708
98	ASMO-708/French-1
107	ICL Cross range
108	ICL ASMO 449+
109	HP Arabic 8 Lower
110	HP Arabic 8 Upper
111	WANG

Contextual Processing

An Arabic character can have up to four different shapes (initial, medial, final, and alone) depending on its position in a word. However, in a typical Arabic code set, every Arabic character is represented by a single unique code independent of its shape. Bilingual I/O devices, such as printers, terminals, etc., choose the proper shape of a character depending on its position in a word. This automatic shape determination is called contextual processing.

Your printer has built-in routines for contextual processing of Arabic characters. The following example illustrates how these routines work.

Char. Sent 

Sending a sequence of three "<214>" characters followed by a SPACE and one "<214>" will produce all of the four shapes of this character: initial, medial, final, and alone.

Printout

3 *Arabization at Work*

Introduction

This chapter shows you how to set up the different Arabization mechanisms and code sets. It also describes how text is handled under different Arabization mechanisms.

Control Commands

Your printer supports different Arabization mechanisms and several code sets. You can setup these parameters as well as the display features, see *Chapter 4*, by sending special control commands to your printer. These control commands are called *Escape (ESC) sequences*. They consist of the special control character "Escape" (ESC) followed by other characters and numbers. ESC sequences do not contain spaces, except when a space is explicitly denoted by <SP>. Care should be taken when an ESC sequence contains alphabetic characters because ESC sequences are case sensitive.

We will present ESC sequences in ASCII format. As an example, the following command sets the major mode of the printer to Arabic:

```
<ESC>{L          Set major mode to Arabic
```

The command is sent from a host computer to the printer in three bytes:

byte 1 has the <ESC> character (Hex 1B , Decimal 27).
byte 2 has "{" (Hex 7B , Decimal 123).
byte 3 has "L" (Hex 48 , Decimal 72).

You may send the command to a printer directly from your computer or by using a software program. For example, the following BASIC statement sends the above command to your printer:

```
100 LPRINT CHAR$(27);"{L"
```

In some cases, a control command (ESC sequence) will have an alternative command that does the same function. This implementation of ESC sequences is necessary for compatibility with already existing

Language Modes

The language of a printed text is determined by the setting of the
language mode of the printer. There are three language modes: major mode, insertion mode, and line mode. These language modes are common to all mechanisms.

Major Mode

The default language of a text is determined by the setting of the major language mode (major mode). Besides the language, major mode affects the presentation direction and the initial active position, which is the position where printing starts after a Carriage Return, Line Feed, or Form Feed. The effects of the major mode are outlined in Table 3.1.

Feature	Arabic Mode	Latin Mode
Language	Arabic	Latin
Presentation direction	right to left	left to right
Initial active position	right margin	left margin

Table 3.1 Effects of Major Mode

The following ESC sequences show you how to set the major mode:

Insertion Mode

While creating a text with certain language, you can insert strings of text from the opposite language. To start this insertion you should first invoke the bilingual insertion mode (insertion mode). After inserting a text, you should send a control command to end the insertion mode and revert to the major mode. The control commands that start and end the insertion mode differ according to the Arabization mechanism used. Refer to the following section, *Arabization Mechanisms*, for more details.

Insertion Level

When this feature is enabled, each time an Arabic insertion takes place, a counter is incremented, and each time a Latin insertion takes place, the same counter is decremented. When this counter is greater than zero, the printer will be in Arabic Insertion, and when this counter is less than zero, the printer will be in Latin Insertion. The start Arabic insertion takes place when the counter equals 1.

The following ESC sequences show you how to control insertion level:

The inserted text begins at the active position and slides away from the point where the insertion starts. This *insertion sliding* insures the processing of the language in its natural order.

Example 3.1

This example shows you how insertion sliding works. The printer is using "7-Bit with SWCs" Arabization mechanism, see next section, and operating in the Latin major mode.

Char. Sent

Notice that the word

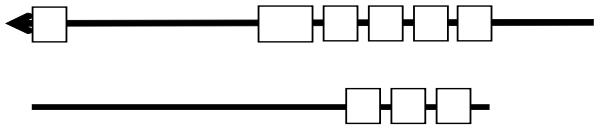
Example 3.2
If the text of *Example 3.1* is printed with the insertion sliding disabled, the word #

Similarly, in the Arabic major mode, an SLB character starts the Latin line mode where the following effects take place:

1- The active position moves to the leftmost unused portion of the line. If the line is empty, the active position moves to the left margin.
2- Presentation direction is "from left to right".

Example 3.4
This example illustrates how line mode can be changed several times when printing a single line. It is assumed that the major mode is Latin.

Char. Sent



Printout

Notice from the above example that a SAB (or SLB) character
is printed as a single space.

Line boundary characters (SAB and SLB) are used to control line mode in all Arabization mechanisms except in the cases of "7-Bit with SWCs" and "8-Bit with SWCs". These two Arabization mechanisms use different characters, called *double SWCs*, to control line mode. The function of double SWCs is slightly different from line boundary characters. For more details, refer to section *Double SWCs* in this chapter.

Some code sets do not have line boundary characters (SAB and SLB). If such code sets are used, it is not possible to utilize line mode operations. However, if you are using "7-Bit with SWCs" or "8-Bit with SWCs" Arabization mechanisms, it is always possible to utilize line mode operations through the double SWCs characters.

Scope of Line Mode

By default, a Carriage Return, Line Feed, or Form Feed terminates the line mode and reverts the language mode to the major mode. This limits the *scope* of line boundary characters (or double SWCs) to the current line. Therefore, the scope is called *local*. You may set the scope to *global* where line boundary characters (or double SWCs) affect all subsequent lines. If the scope is global, a SAB (or the equivalent double SWCs) changes the major mode to Arabic and an SLB (or the equivalent double SWCs) changes the major mode to Latin.

When the scope of line boundary characters (or double SWCs) is global, there is an additional option, called Local After Column 16, which affects the line mode. When Local After Column 16 option is enabled, the scope of line boundary characters (or double SWCs) that occur after column 16 will be local regardless of any other setting. Column 16 is the 16th column from left when the major mode is Latin, and from right if the major mode is Arabic. The following ESC sequence sets the scope of line boundary characters (and SWCs):

You may also use the following command to change the setting of the scope without affecting the setting of Local After Column 16 option.

<ESC>[39;0~	Set scope to local (default)
<ESC>[39;1~	Set scope to global

Some peripherals require specific setting for operation in the line mode. For example, if you are using an AL-ARABI peripheral, you should set the scope to global and enable Local After Column 16.

Arabization Mechanisms

We presented in *Chapter 2* the Arabization mechanisms supported by Printronix Line Matrix Arabic printers. These mechanisms are mutually exclusive: only one may be used at a time. They mainly differ in two aspects:

1- **Coding Environment:** an Arabization mechanism can operate with either 7-bit or 8-bit code sets. It is necessary to use a 7-bit Arabization mechanism if your computer system or application can only handle 7-bit code sets.

<ESC>[5;0~	Set 7-bit coding environment
<ESC>[5;1~	Set 8-bit coding environment

2- **Code Set Switching:** an Arabization mechanism can use either one or two code sets. If one code set is used, then this code set covers both the Arabic and Latin characters. If two code sets are used, then one of them is an Arabic code set and the other is Latin. Arabization mechanisms that use two code sets work with a single code set at a time and are capable of switching to the other in response to some control commands. The switching capability determines whether an Arabization mechanism uses one or two code sets.

<ESC>[35;0~	Disable code set switching
<ESC>[35;1~	Enable code set switching

Many computer systems or applications use 7-bit code sets. Since 7 bits may represent only 128 characters, more codes are needed to represent both Arabic and Latin characters. Therefore, all 7-bit Arabization mechanisms use two 128-character code sets, left side code set for Latin and right side for Arabic.

In 8-bit Arabization mechanism one 256-character code set is sufficient to represent both Arabic and Latin characters.

The following sections cover all the Arabization mechanisms supported by Printronix Line Matrix Arabic printers. Note that three ESC sequences are needed to select an Arabization mechanism. The first two of them sets the coding environment and the switching capability.

7-Bit with SWCs

The 7-bit with SWCs Arabization mechanism uses two 7-bit code sets: one for Arabic characters and one for Latin characters. Following are ESC sequences that select this mechanism:

<ESC>[5;0~	Set 7-bit coding environment
<ESC>[35;1~	Enable code set switching
<ESC>[12;1~	Select SWCs

The SWC refers to the Switching Characters, which are the control characters used in this Arabization mechanism. There are four different SWCs:

1- **Start Arabic Insertion SWC (SAI):** this SWC is used in Latin major mode to start an Arabic insertion.

2- **End Arabic Insertion SWC (EAI):** this SWC terminates an Arabic insertion where the language mode reverts to the Latin major mode.

3- **Start Latin Insertion SWC (SLI):** this SWC is used in Arabic major mode to start a Latin insertion.

4- **End Latin Insertion SWC (ELI):** this SWC terminates a Latin insertion where the language mode reverts to the Arabic major mode.

The SWCs are determined by the code set used. See *Appendix B* for listing of all code sets and their SWCs. An SWC is chosen from rarely used characters such as braces, a vertical bar, and a tilde. An SWC will lose its original graphic representation and is printed as a space. Having a space at a language transition is usually acceptable. The four SWCs may not all be unique characters. Many code sets use only two characters to represent the four SWCs. As an example, in ASMO-449 code set the left brace,"{", is used as both SLI and EAI, while the right brace,"}", is used as both SAI and ELI.

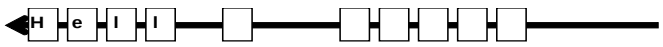
In this Arabization mechanism, a Carriage Return, Line Feed, or Form Feed terminates an insertion. An insertion terminated this way without using an SWC is called an *open insertion*.

Unlike control characters, graphic characters (including SWCs) are generally not modified when stored or processed by applications. A Latin application is unaware of Arabization and handles a bilingual text as an ordinary Latin text. Thus, SWC Arabization mechanisms are considered transparent.

Example 3.5
This example shows you how SWCs are used to insert an Arabic text in Latin major mode. The character set used is ASMO-449, where the right brace, "}" is the SAI character and the left brace, "{", is the EAI character.

Notice that an SWC occupies a space on paper.

Char. Sent



Printout

SWC Balancing

When SWC balancing is enabled, any insertion has to be explicitly delimited by a pair of opposite SWCs that start and end an insertion. Unbalanced SWCs lose their effect as control characters and behave as regular graphic characters.

Enabling SWC balancing prevents insertion breaking even if insertion breaking is enabled. Insertion breaking occurs when a *start insertion* SWC is sent during the insertion mode. When SWC balancing is enabled and after starting an insertion with an SAI (SLI), any character sent to the printer will be considered part of the inserted text until the insertion is terminated with an EAI (ELI). For example, if you start an insertion with SAI and send another SAI, the second SAI will be printed as a regular graphic character without causing any insertion breaking

<ESC>[28;0~	Disable SWC balancing(default)
<ESC>[28;1~	Enable SWC balancing

User Defined SWCs

Some special symbols used by applications , programming languages and operating systems may conflict with SWCs. To avoid this conflict, you may define your own SWCs. The SWCs associated with the active code set can be defined by:

<ESC>{I	Define SWCs

Where:
n1: Code of Start Arabic Insertion character (SAI).
n2: Code of Start Latin Insertion character (SLI).
n3: Code of End Arabic Insertion character (EAI).
n4: Code of End Latin Insertion character (ELI).

In the above ESC sequence, each of the codes *n1, n2, n3,* and *n4* is a one byte code that specifies an SWC character according to the code set you are using. Any code between 21 Hex and 7E Hex is acceptable. If you use an invalid code to define an SWC the previous code will remain effective.

The four characters assigned as SWCs need not to be unique. You may use as little as two characters to define the four SWCs, where, one character serves as both SAI and ELI and a different character serves as both SLI and EAI. The following ESC sequences assign two characters for the four SWCs:

<ESC>[53;	~ CC as SAI and ELI
<ESC>[54;	~ Define CC as SLI and EAI

The CC in the above commands is sent to the printer as a decimal number. Since the value of CC is between 33 (21 Hex) and 126 (7E Hex), it may take up to three bytes to specify CC , where the three bytes contain the ASCII codes of the decimal digits in CC. For example, if you want to define the character with the code 124 (decimal) as SAI and ELI, use the following BASIC statement:

```
100 LPRINT CHR$(27);"[53;124~"
```

User defined SWCs are not effective unless they are activated. The following ESC sequences show you how to activate user defined SWCs and how to revert to the built-in SWCs:

<ESC>[55;0~	Activate built in SWCs (default)
<ESC>[55;1~	Activate user defined SWCs

Double SWCs

Operations in the line mode are controlled by double SWCs characters in this Arabization mechanism. Line boundary characters (SAB and SLB), which control line mode in other Arabization mechanisms, are not effective. There are two double SWCs that control the line mode:

1-**Double SAI:** when the major mode is Latin, two consecutive SAIs (a double SAI) will start the Arabic line mode where the following effects take place:

a) The active position moves to the rightmost unused portion of the line. If the line is empty, the active position moves to the right margin.
b) Presentation direction is "from right to left".
c) The active code set is switched to the Arabic (right side) code set.

2-**Double SLI:** When the major mode is Arabic, two consecutive SLIs (a double SLI) will start the Latin line mode where the following effects take place:

a) The active position moves to the leftmost unused portion of the line. If the line is empty, the active position moves to the left margin.
b) Presentation direction is "from left to right".
c) The active code set is switched to the Latin (left side) code set.

Except for code set switching, the function of double SAI (double SLI) is similar to the function of SAB (SLB) character in other Arabization mechanisms. In addition, while an SAB (SLB) character is printed as a single space on paper, a double SAI (SLI) is printed as two spaces.

Double SWCs should be used in the major or line modes. They do not have any effect on the line mode if they are sent in the insertion mode.

SWC Visibility

In normal operations, SWCs are printed as spaces. Printronix Line Matrix Arabic printers provide an option to view these control characters. When SWC visibility is enabled, SWCs will be printed in their graphical form.

<ESC>[20;0~	Disable SWCs visibility (default)
<ESC>[20;1~	Enable SWCs visibility

8-Bit with SWCs

The 8-Bit with SWCs works the same as 7-Bit with SWCs mechanism; however, it uses two 8-bit code sets:
An Arabic code set (right side code set) and a Latin code set (left side code set). Section Setting Code Sets shows you how to select the right side and left side code sets.

You can select this mechanism by sending the following ESC sequences:

<ESC>[5;1~	Set 8-bit coding environment
<ESC>[35;1~	Enable code set switching
<ESC>[12;1~	Select SWCs

7-Bit with ESC Sequences

This Arabization mechanism uses two 7-bit code sets. The following ESC sequences select this mechanism:

<ESC>[5;0~	Set 7-bit coding environment
<ESC>[35;1~	Enable code set switching
<ESC>[12;0~	Select ESC Sequences

This mechanism uses ESC sequences as language switches. Therefore, to start or end a bilingual insertion you should use one of the following ESC sequences:

<ESC>[92~	**SINA:** starts Arabic insertion (in Latin major mode)
<ESC>[93~	**SINL:** starts Latin insertion (in Arabic major mode)
<ESC>[94~	**EIN:** ends insertion

An insertion can also be terminated using open insertion or insertion breaking mechanisms in the same way insertions are terminated in SWC Arabization mechanisms. Unlike SWCs, ESC sequences do not occupy a space on paper. Insertions
may touch the text in which they are inserted.

Depending on the Latin software you use, this Arabization mechanism might not be transparent, since ESC sequences are often removed or interpreted when saved or processed by applications.

8-Bit with ESC Sequences

The 8-Bit with ESC Sequences works the same as 7-Bit with ESC Sequences mechanism, however, it uses two 8-bit code sets:
an Arabic code set (right side code set) and a Latin code set (left side code set). Section Setting Code Sets shows you how to select the right side and left side code sets.

You can select this mechanism by sending the following ESC sequences:

<ESC>[5;1~	Set 8-bit coding environment
<ESC>[35;1~	Enable code set switching
<ESC>[12;0~	Select ESC Sequences

8-Bit Pure

This Arabization mechanism uses one 8-bit code set. The following ESC sequences select this mechanism:

<ESC>[5;1~	Set 8-bit coding environment
<ESC>[35;0~	Disable code set switching

The 8-bit code set has 256 characters which are sufficient to cover both Arabic and Latin.

The code set is defined by selecting two 7-bit code sets, usually ASCII in the first 128 positions of the table (left side) and an Arabic code set in the next 128 positions of the table (right side).

The language of a character can be either Arabic or Latin. It is determined according to the Reference code of the character, see Appendix C. This rule holds for all characters, including space, numerals, punctuation and special symbols.

Insertions start and end at language transitions. Thus, if the major mode is Latin, for example, then sending an Arabic character will start Arabic insertion mode. You can end this insertion by sending a Latin character.

Since there are no control commands to switch the languages, this Arabization mechanism offers a good control over language handling.

When using 8-bit codes, there is no standard on how to interpret Arabic characters, as there is for 7-bit coding. For example, ASCII codes 30 Hex through 39 Hex are recognized as the digits 0 through 9. Usually, all Arabic characters are considered alphabetic. Thus, Arabic digits and special symbols are considered ordinary text. This is why 8-Bit Pure may not be transparent with Latin data processing application.

8-Bit Neutral

This Arabization mechanism uses one 8-bit code set. The following ESC sequences select this mechanism:

```
<ESC>[5;1~   Set 8-bit coding environment
<ESC>[35;0~  Disable code set switching
```

Notice that the ESC sequences that select 8-Bit Pure and 8-Bit Neutral differ only in the last ESC sequence that enables (or disables) neutral characters:

```
<ESC>[16;0~  Disable neutral characters
<ESC>[16;1~  Enable neutral characters
```

The above ESC sequences have the following equivalents:

```
<ESC>{dA     Disable neutral characters
<ESC>{dB     Enable neutral characters
```

This Arabization mechanism is similar to 8-Bit Pure, except that neutral characters in both Arabic and Latin text have the same codes. Neutral characters include all non-alphabetic characters that exist in the ASCII code set, i. e. , all the characters in the ASCII code set except [A-Z] and [a-z].

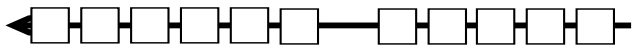
Neutral characters represent both Arabic and Latin digits and special symbols. Thus, 8-Bit Neutral mechanism solves the problem of 8-Bit Pure where Arabic digits and special symbols are considered ordinary text.

The language in which neutral characters are printed is determined by the context. There are four neutrals handling methods that determine the language of a neutral character:

1- **Two-Sided:** If a neutral character (or string of neutral characters) is surrounded by characters of the same language, then the neutral character takes the language of its surrounding characters, otherwise the neutral character takes the language of the major mode.

Example 3.6

The following characters are sent to a printer operating in Latin major mode:

Char. Sent 

Printout

1632 :

Since the neutral characters are surrounded by Arabic non-neutral characters, they are printed in their Arabic shape. If the last Arabic character "<P14><176><P255>" is not sent, the output will be:

Printout

Here, neutrals took the language of the major mode (Latin). Since they are considered Latin characters, the Arabic insertion is terminated when the colon (:) is sent where the printer reverts to the Latin major mode.

2- **One-sided:** a neutral character (or string of characters) takes the language of a preceding non-neutral character on the same line. If it is sent after a Carriage Return, Line Feed, or Form Feed, it takes the language of the major mode.

3- **One-Sided for Numerals Two-Sided for Others:** for certain applications, which process text and numeric data, it may be desirable to use a different neutral handling mechanism for numeric and non-numeric neutral characters. The One-sided for Numerals Two-Sided for Others uses the one-sided method on numeric data and the two-sided method on other neutral characters. This method is compatible with the Arabic MS-DOS neutral handling method of the same name.

4-**Two-Sided with Language Spaces:** this neutral handling method is similar to Two-Sided method except that the neutral space character (20 Hex) is no longer considered neutral and has a special treatment. Two types of spaces with different language contents are used:

a) **Major Space (20 Hex):** the language of this space is similar to the language of the major mode.
b) **Insertion Space (A0 Hex):** the language of this space is opposite to the language of the major mode.

The following ESC sequences show you how to set neutral handling methods:

Column Heading Mode

When column heading mode is enabled, the neutral space character (20 Hex) will always take the language of the major mode. Thus, this character will not behave as a neutral character where it will always end insertions. This property causes multiple strings of inserted text, which are separated by neutral spaces, to be printed in the same order as the presentation direction of the major mode. Column heading mode is useful in applications, such as spreadsheets, where multiple columns of numbers and text are printed.

The following ESC sequences show you how to enable and disable column heading mode:

Summary of Arabization Mechanisms

The following table summarizes the properties of each of the five Arabization mechanisms supported by Printronix Line Matrix Arabic printers.

Arabization Mechanism	Coding Environment	Number of Code Sets	Line Mode Controllers	Insertion Mode Controllers
7-Bit with SWCs	7-bit	2	Double SWCs	SWCs
8-Bit with SWCs	8-bit	2	Double SWCs	SWCs
7-Bit with ESC Sequences	7-bit	2	SAB and SLB	ESC Sequences
8-Bit with ESC Sequences	8-bit	2	SAB and SLB	ESC Sequences
8-Bit Pure	8-bit	1	SAB and SLB	Language Transition
8-Bit Neutral	8-bit	1	SAB and SLB	Language Transition
8-Bit with ESC Sequences	8-bit	2	SAB and SLB	ESC Sequences

Table 3.3 Summary of Arabization mechanisms

Disabling Arabization

When Arabization is disabled all bilingual commands are ignored and the printer behaves as a Latin only printer. The following ESC sequences show you how to enable and disable Arabization:

<ESC>{]B	Enable Arabization
<ESC>{]A	Disable Arabization

Setting Code Sets

By default, your Printronix Line Matrix Arabic printer uses ASCII for left side (Latin) code set and ASMO-449/Plus for right side (Arabic) code set. Printronix Line Matrix Arabic printers support many other code sets, refer to Appendix B for complete listing of supported code sets and their ID numbers (characters). There are two different methods to change the setting of code sets:

<ESC>[24;*ID*~Set left side code set
<ESC>[25;*ID*~Set right side code set

1) If the ID of a code set is numeric use the ESC sequences:
   The ID in the above commands is entered as a decimal number.
2) If the ID of a code set is alphabetic use the ESC sequence:

<ESC>{K*ID* Set right side code set

The *ID* in the above command is a single alphabetic character.
The left side and right side code sets have different meanings according to the Arabization mechanism in use:

In "7-Bit with SWCs" and "7-Bit with ESC Sequences", the left side and right side code sets are the Latin and Arabic code sets, respectively. Each of these code sets consist of 128 characters.

In "8-Bit Pure" and "8-Bit" Neutral, one bilingual 8-bit code set is used. The left side refers to the lower part of the code set, i. e., the first 128 characters. The right side refers to the upper part of the code set, i. e., the second 128 characters.

In "8-Bit with SWCs" and "8-Bit with ESC Sequences", the left side and right side code sets are the Latin and Arabic code sets, respectively. Each of these code sets consist of 256 characters. Since a code set with 256 characters has two ID numbers, one for the lower part and one for the upper part, you can use either ID number to select this code set. If you select a 7-bit code set for the left (or right) side, the 7-bit code set will constitute the first 128 characters of the left (or right) code set. The second 128 characters will be automatically set to the IBM 437 (upper) code set.

User Defined Code Set

Along with the built-in code sets supported, you can define your own code set. A user defined code set is useful in situations as:

1- Emulating a non-standard code set.

2- Recreating a built-in code set to add numeric space, Latin only space or lam-alef in one cell, etc.

The code associated with a character in a code set table is called a *communication code* or CC. This is the code that identifies the character in all communications between the printer and application software. A character's communication code varies depending on the code set used. Printronix Line Matrix Arabic printers use another internal codes, *reference codes* (RC), to represent characters. Each character has a unique reference code independent of its communication code. Appendix C contains a table of Printronix reference codes.

To build a *user defined code set*, you should assign a communication code to each character in the user defined code set. Printronix Line Matrix Arabic printers let you make this assignment by using the reference codes. If, for example, you want the character "S" to have a communication code 72 (in the left side code set), assign 72 to the reference code of "S", 68, by sending the following ESC sequence:

You can use the same command to build the rest of the code set as shown below:

Both CC and RC are sent to the printer as decimal numbers. The above ESC sequence defines the left side code set. To define the right side code set, use the same ESC sequence after adding 128 to the communication code. For example, if you want the Arabic character "

A user defined code set is not effective unless it is selected. Once a code set is defined, it may be selected with the following ESC sequences:

<ESC>[24;18~	Select user defined code set (left)
<ESC>[25;56~	Select user defined code set (right)

The code set currently in use is replaced by the user defined code set. These ESC sequences set the entire code set (left and right sides). The user defined code set must be rebuilt at each power up since it is not saved in the non-volatile memory.

4 *Controlling Your Display*

Introduction

This chapter shows you how to control the display of numerals, Arabic and Latin characters, and diacritics, as well as how to select the available fonts.

Numeric Handling

This section provides you with the commands that control numeric shape, sliding, spacing, and the thousand separator.

Shape of Numerals

Two shapes of numerals are available:

Arabic Numerals	0	1	2	3	4	5	6	7	8	9
Hindi Numerals	3	4	5	6	7	8	9	:	;	<

Table 4.1 Shapes of Numerals

1) **Bilingual:** this the default setting where, Hindi numerals are displayed in Arabic text and Arabic numerals are displayed in Latin text.
2) **All Arabic:** Arabic numerals are used in both Arabic and Latin text.
3) **All Hindi:** Hindi numerals are used in both Arabic and Latin text.
4) **Reversed:** Hindi numerals are used in Latin text and Arabic numerals are used in Arabic text.

You can set the shape of numerals using the following ESC sequences:

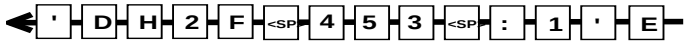
Numeric Sliding

Both Arabic and Hindi numerals are printed from right to left, with the most significant digit printed first. In Arabic text this direction is opposite to the presentation direction. This causes a situation similar to bilingual insertions. This behavior is called *numeric sliding*.

<ESC>{PA	Set Bilingual numerals (default)
<ESC>{PB	Set All Arabic numerals
<ESC>{PD	Set Reversed numerals
<ESC>{PC	Set All Hindi numerals

Example 4.1
This example shows you how numerical sliding works. It is assumed that the printer is in the Arabic major mode. Notice that numerals are sent with the most significant digit first.

Char. Sent



Printout

For data processing applications, sliding ensures that the printer will display numerals correctly, since computers send numbers with the most significant digit first. Some users may desire to disable numeric sliding, and have numerals printed with the least significant digit first (As in Arabic typewriters).

<ESC>[6;0~	Disable numeric sliding
<ESC>[6;1~	Enable numeric sliding (default)

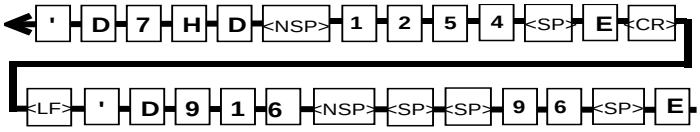
In Arabic insertions, disabling insertion sliding automatically disables numeric sliding, since numbers are sent with the most significant digit first.

Numeric Space

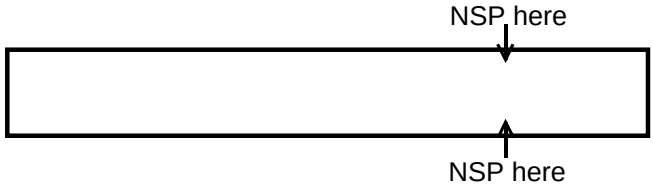
The numeric space (NSP) is used in Arabic text to align columns of digits (numerical justification). A single numeric space is used to force the following spaces to slide like numerals. It does not slide itself and is printed as a space.

Example 4.2
In this example numerical space is used to right justify numerical fields. The major language mode is Arabic.

Char. Sent



Printout



The NSP character exists in some Arabic code pages only.

Depending on the current setting of the printer, a numeric space may also serve as a linking space (see section *Arabic Character Display* below for more details).

Numeric Field Justification

The *numeric field justification (NFJ)* character is used in Arabic text to align columns of digits (numerical justification). Although the NFJ character and the numeric space character (NSP) are used for numerical justification, they operate in a different way. The NFJ operates in two modes:

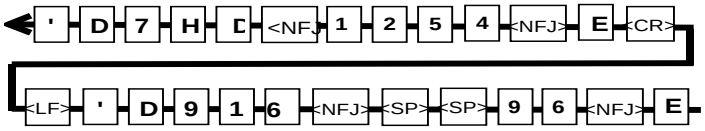
1- **Single Character Mode**: a single NFJ character is used to force the following characters to slide like numerals. It does not slide itself and is printed as space. Sliding is terminated when a transition from a numeric to a non-numeric character is encountered.

2- **Double Character Mode**: in this mode any Arabic text that is surrounded by two NFJ characters will slide like numerals.

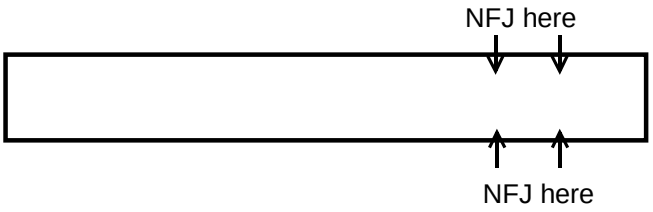
Example 4.3

The following text is printed under the Double Character Mode setting of NFJ. Notice that the NFJ character is printed as a space.

Char. Sent



Printout



The NFJ character is chosen from the active code set. You may define any graphic (printable) character as NFJ.

By default, any character defined as an NFJ is not printed in its usual graphical representation, instead, it will be printed as a space. You may change this setting so that the NFJ character is replaced by a character other than space (20 Hex).

Finally, you should enable NFJ character in order to make use of its operation. When the NFJ character is disabled, it will behave as a regular graphic character.

The following ESC sequence defines all the parameters for NFJ operation:

<ESC>{T *n1 n2 n3 n4*	Define NFJ parameters

where:

n1 = "A"; disables NFJ operation.
= "B"; enables NFJ operation.

n2: code of the NFJ character.

n3: code of the replacement character.

n4 = "A"; sets Double Character Mode.
= "B"; sets Single Character Mode.

In the above ESC sequence, each of the codes n2 and n3 is a one byte code that specifies the NFJ and the replacement character according to the effective code set. For the NFJ character, any code between 21 Hex and 7E Hex is acceptable and for the replacement character the range of acceptable codes is from 20 Hex to 7E Hex. If you use an invalid code to define the NFJ or the replacement character, the previous code will remain effective.

Note that NFJ and the replacement character are chosen from the Arabic code set. This creates a difference between the definitions and usage of the NFJ and the replacement characters when using 8-bit pure or 8-bit neutral Arabization mechanism. Although you define the NFJ character in the range 21 Hex to 7E Hex. the actual code that should be used is its definition plus 80 Hex.

Note also that in 7-bit SWCs and 8-bit SWCs Arabization mechanisms, you cannot use the codes used for Switching Codes to define the NFJ or the replacement characters.

Blank Digit

The *blank digit (BDG)* is used in Arabic text. It slides like numerals but is displayed as space. The purpose of the blank digit is to align columns of digits in certain applications that pad numerical fields with user specified characters. A blank digit is available in certain code sets. To use it, replace all spaces inside the numeric field by a blank digit.

Numeric Space and Blank Digit Class

When using 8-Bit Neutral Arabization mechanism, you can set NSP and BDG to behave as either Arabic characters or neutral characters. When they behave as neutral characters they take the language of the adjacent characters depending on the active neutrals handling method.

Arithmetic Operators

The four arithmetic operators (+, -, *, and /) can be set as numeral or non-numeral characters. When they are set as numerals, they behave as regular numeral characters. For example, they will slide in numeric fields.

Period in Arabic

In Latin, the period acts as both a decimal separator and a sentence terminator.

In Arabic, the period serves as sentence terminator only while the decimal separator is (","). **Printronix** printers use one character, the Arabic period ("."), from the Arabic code set to represent both the period and the decimal separator. This representation is necessary for the transparent Arabization of Latin software. The shape of the Arabic period is determined by the context according to the following rules:

1- When one period touches a Hindi numeral, it is considered part of a numeric string. Therefore, it slides with a numeric string and will be displayed as decimal separator (","). To place a period after a number, a space should be inserted in between.
2- If a period does not touch a numeral, it will be printed as a dot ("."), and it will not slide (unless in an insertion).
3- More than one consecutive periods will always be displayed as dots, even if they touch a numeral. Periods will not slide in this situation (unless in an insertion).

Thousand Separator

The comma (",") serves as the thousand separator character in both Latin and Arabic text. In Latin text, the thousand separator is printed as a comma. In Arabic text, the thousand separator is printed as either a comma (","), an Arabic waw ("

The *Thousand Separator Processing* option controls the behavior of the comma in Arabic text. When this option is disabled, the comma is always considered a regular graphic character. When the Thousand Separator Processing is enabled, a comma that is surrounded by two digits is considered a thousand separator, where it slides with numerals, and is displayed as either a comma, a waw, or an Arabic period. The following ESC sequences control the thousand separator in Arabic text:

Hindi Digit Two

Printronix printers offer two shapes for Hindi digit two: Naskh and Reqa'a. This feature depends on the available fonts.

Latin Character Display

This section describes the available options for the display of Latin characters.

Upper-Case Printing

When *upper-case printing* is enabled all Latin alphabetic characters are printed in their upper-case form, even if they are sent to the printer as lower case characters.

Arabic Character Display

This section describes the available options for the display of Arabic characters.

Wide Character Display

There are eight Arabic characters defined as wide characters:

Disabling Contextual Processing

Contextual processing of Arabic characters ensures that each character is printed in the proper shape according to its position in a word. You can disable contextual processing where Arabic characters will be printed in their alone shape regardless of the surrounding characters.

Lam-Alef Ligature

When a lam "

Arabic Diacritics

This section describes the options that control the display of Arabic diacritics.

Diacritics Visibility

You can set your Printronix Line Matrix Arabic printers so that diacritics will not be printed even though they are part of the text.

Diacritics Position

Printronix Line Matrix Arabic printers offer two options for positioning diacritics:

1- **Diacritic Above and Below**: diacritics are printed on two separate lines, above and below the line containing the text. All diacritics are printed on the line above except "kasra" and "tanween kasr", which are printed on the line below. In both cases, a diacritic is printed exactly in the cell above or below the letter. Since three lines are printed for each line of text, sufficient line spacing is necessary to ensure that diacritics do not overwrite text.

2- **Diacritic Following**: a diacritic is printed in a separate cell following the letter it is associated with. It will appear with or without a "tatweel" ("

Fonts

You can select the Arabic font using the ESC sequence:

<ESC>{W*n*	Select Arabic font

Where n is a character that specifies the font and:

n = "A", Naskh
= "B", Naskh (bold)
= "C", Koofi
= "D", Koofi (bold)
= "E", Hadeeth
= "F", Ziba
= "G", Reqa'a
= "H", Haydar
= "I", Asri
= "J", Data Process
= "K", High Speed
= "N", HS Draft

Check your printer's manual for the available Arabic fonts.

Graphics Processing

Printronix Arabization now includes Graphics Processing. Graphics Processing includes two parts: Graphics handling and graphics flipping.

Graphics Handling

Graphics handling defines how the orientation of graphics characters is defined in 8-bit Arabization solution. In 7 bit Arabization solution, the switching codes or ESCs defines the orientation of the character, whether Arabic or English.

In 8-bit solutions (8-bit pure, and 8-bit with neutrals), the graphical characters language (orientation) can be defined by sending the following ESC:

<ESC>[=5;n~

where:

n=0 means that the graphical characters are always Latin. They always go from left to right and break Arabic insertion.

n=1 means that graphical characters are always Arabic. They always go from right to left and break Latin insertions.

n=2 means that the graphical characters are one-sided neutrals. They follow the language of the last non-neutral character sent.

n=3 means that the graphical characters are two-sided neutrals. They follow the major language unless they are surrounded by characters of minor language.

n=4 means that the graphical characters follow the major language. If the major language is Arabic, they are Arabic. If the major language is Latin, they are Latin.

n=5 means that the graphical characters follow the minor language. If the major language is Arabic, they are Arabic, they are Latin. If the major language is Latin, they are Arabic.

Graphics Flipping

Graphics Flipping means that a graphical character, with Arabic orientation is mapped to its mirror image (left corner becomes right corner and so on). You can enable or disable graphics flipping by sending the following ESC sequences:

<ESC>[=4;0~	Disables graphics flipping
<ESC>[=4;1~	Enables graphics flipping

SI/SO Handling

SI is the Shift-In character (0F Hex) and SO is the Shift-Out character (0E Hex). The printer will operate in four different modes when it receives these characters according to the SI/SO handling mode:

1- **Normal:** The SI/SO characters will perform their function according to the selected emulation.
2- **Ignored:** The SI/SO characters will be absorbed, and will not have any effect on the print-out.
3- **Switching Code:** The SI/SO characters will be used as language switching codes. In the Arabic major mode, the SI character will start the Latin insertion mode, and the SO character will end the Latin insertion mode. In the Latin major mode, the SO character will start the Arabic insertion mode and the SI character will end the Arabic insertion mode.
4- **Graphics Select:** The SO character will temporarily replace the characters between 6A Hex and 79 Hex in the right and left code sets with graphics characters. The SI character will restore the original meaning of these characters.

You can set the SI/SO handling by using the following ESC sequences:

<ESC>[=10;0~	Sets the SI/SO handling to Normal (default)
<ESC>[=10;1~	Sets the SI/SO handling to Ignored
<ESC>[=10;2~	Sets the SI/SO handling to Switching Code
<ESC>[=10;3~	Sets the SI/SO handling to Graphics Select

A Summary of Escape Sequences

This appendix lists the escape sequences that control Printronix Line Matrix Arabic printers. They are grouped alphabetically. In some cases, there is more than one ESC sequence that performs the exact function. This implementation of ESC sequences is necessary for the compatibility with existing systems. For more information, please refer to *Chapters 3* and *4*.

Description	ESC Sequence
Arabization	
Enable Arabization	<ESC>{]B
Disable Arabization	<ESC>{]A
Enable HP Slave Mode	<ESC>[0;2~
Activate User Defined SWCs	
Activate built in SWCs	<ESC>[55;0~
Activate user defined SWCs	<ESC>[55;1~
Arithmetic Operators	
Set (+,-,*,/) as non-numerals	<ESC>{1;0~
Set (+,-,*,/) as numerals	<ESC>{1;1~
Back Spacing	
Enable Back Spacing	<ESC>{XA
Disable Back Spacing	<ESC>{XB
Code Set Selection (numeric ID)	
Set left side code set	<ESC>[24;*ID*~
Set right side code set	<ESC>[25;*ID*~
Code Set Selection (alphabetic ID)	
Set right side code set	<ESC>{K*ID*
Code Set Switching	
Disable code set switching	<ESC>[35;0~
Enable code set switching	<ESC>[35;1~
Coding Environment	
Set 7-bit coding environment	<ESC>[5;0~
Set 8-bit coding environment	<ESC>[5;1~

Description	ESC Sequence
Column Heading Mode	
Disable Column Heading Mode	<ESC>[29;0~
Enable Column Heading Mode	<ESC>[29;1~
Contextual Processing	
Disable Contextual Processing	<ESC>{cA
Enable Contextual Processing	<ESC>{cB
Diacritic Entry	
Diacritics coded before the letter	<ESC>[10;0~
Diacritics coded after the letter	<ESC>[10;1~
Diacritic Position	
Display diacritics above or below letter	<ESC>[9;0~
Display diacritics following letter	<ESC>[9;1~
Diacritic Visibility	
Suppress diacritics	<ESC>[8;0~
Display diacritics	<ESC>[8;1~
Double Width Calculation	
2 Cells	<ESC>{40;0~
1 Cell	<ESC>{41;0~
Fonts (Arabic)	
Select Arabic font	<ESC>{W n
Graphic Processing	
Disable graphics flipping	<ESC>[=4;0~
Enable graphics flipping	<ESC>[=4;1~
Set graphics handling to Latin	<ESC>[=5;0~
Set graphics handling to Arabic	<ESC>[=5;1~
Set graphics handling to one-sided neutrals	<ESC>[=5;2~
Set graphics handling to two-sided neutrals	<ESC>[=5;3~
Set graphics handling to major language	<ESC>[=5;4~
Set graphics handling to minor language	<ESC>[=5;5~
Hindi Digit Two Shape	
Select Naskh Hindi 2 shape	<ESC>[22;0~
Select Reqa'a Hindi 2 shape	<ESC>[22;1~
Insertion Breaking	
Disable insertion breaking	<ESC>{GA
Enable insertion breaking	<ESC>{GB
Insertion Level	
Enable Insertion Level	<ESC>{3;1~
Disable Insertion Level	<ESC>{3;0~

Description	ESC Sequence
Insertion Mode	
SINA: Starts Arabic insertion (in Latin)	<ESC>[92~
SINL: Starts Latin insertion (in Arabic major mode)	<ESC>[93~
EIN: Ends insertion	<ESC>[94~
Insertion Sliding	
Disable insertion sliding	<ESC>{bA
Enable insertion sliding	<ESC>{bB
Lam-Alef Ligature	
Select two-cell lam-alef ligature	<ESC>{2;0~
Select one-cell lam-alef ligature	<ESC>{2;1~
Lam-Alef Expand	
Enable Lam-Alef Expand	<ESC>[=11;1~
Disable Lam-Alef Expand	<ESC>[=11;0~
Linking Space	
NSP is not a linking space	<ESC>[36;0~
NSP has the property of linking space	<ESC>[36;1~
Major Mode	
Set major mode to Arabic	<ESC>{L
Set major mode to Latin	<ESC>{M
Neutral Characters	
Disable neutral characters	<ESC>{dA
Enable neutral characters	<ESC>{dB
Neutrals Handling Modes	
Enable 2-Sided	<ESC>[16;1~
Enable 1-Sided Numeric 2-Sided Other	<ESC>[16;2~
Enable 1-Sided	<ESC>[16;3~
Enable 2-Sided with Language Spaces	<ESC>[16;4~
Numeric Field Justification	
Define NFJ parameters	<ESC>{T n_1 n_2 n_3 n_4
Disable NFJ Operation	<ESC>{TA
Numeric Space/Blank Digit Class	
NSP/BDG behave as neutral characters	<ESC>[41;0~
NSP/BDG behave as Arabic characters	<ESC>[41;1~
Numeric Sliding	
Disable numeric sliding	<ESC>[6;0~
Enable numeric sliding	<ESC>[6;1~
Select SWCs	
Select SWCs	<ESC>[12;1~

Description	ESC Sequence
Select ESC Sequences	
Select ESC Sequences	<ESC>[12;0~
Shape of Numerals	
Set Bilingual numerals	<ESC>{PA
Set All Arabic numerals	<ESC>{PB
Set All Hindi numerals	<ESC>{PC
Set Reversed numerals	<ESC>{PD
Scope of Line Boundary Characters	
Set scope to local	<ESC>[39;0~
Set scope to global	<ESC>[39;1~
Scope of Line Boundary Characters with	
Set scope to local	<ESC>{\BA
Set scope to global and disable *Local After Column 16*	<ESC>{\AA
Set scope to global and enable *Local After Column 16*	<ESC>{\AB
Shadda Composition	
Disable shadda composition	<ESC>[42;0~
Enable shadda composition	<ESC>[42;1~
SI/SO Handling	
Normal	<ESC>[=10;0~
Ignored	<ESC>[=10;1~
Switching Code	<ESC>[=10;2~
Graphic Select	<ESC>[=10;3~
SWC Balancing	
Disable SWC balancing	<ESC>[28;0~
Enable SWC balancing	<ESC>[28;1~
SWC Visibility	
Disable SWCs visibility	<ESC>[20;0~
Enable SWCs visibility	<ESC>[20;1~
Thousand Separator	
Disable Thousand Separator Processing	<ESC>[44;0~
Enable Thousand Separator Processing and display it as a comma ","	<ESC>[44;1~
Enable Thousand Separator Processing and display it as a waw "ﻭ"	<ESC>[44;2~
Enable Thousand Separator Processing and display it as an Arabic comma "٫"	<ESC>[44;3~

Description	ESC Sequence
Upper-Case Printing	
Disable upper-case printing	<ESC>{C
Enable upper-case printing	<ESC>{D
User Defined SWCs (four characters)	
Define SWCs	<ESC>{I n_1 n_2 n_3 n_4
User Defined SWCs (two characters)	
Define CC as SAI and ELI	<ESC>[53;*CC*~
Define CC as SLI and EAI	<ESC>[54;*CC*~
User Defined Code Set (Definition)	
Assign communication code CC to reference code RC	<ESC>[51*CC;RC*~
User Defined Code Set (Selection)	
Select user defined code set (left)	<ESC>[24;18~
Select user defined code set (right)	<ESC>[25;56~
Wide Character Display	
Select compressed tail	<ESC>[14;0~
Select variable tail	<ESC>[14;1~
Wrap Around	
Enable Wrap Around	<ESC>[=8;1~
Disable Wrap Around	<ESC>[=8;0~
SWC Selection	
Activate built in SWC	<ESC>[55;0N~
Activate user defined SWC	<ESC>[55;1N~

B *Code Sets*

This appendix lists the tables of code sets supported by Printronix Line Matrix Arabic printers. Each cell of code table contains a single character. The communication code of the character is obtained by adding the two coordinates (in hexadecimal or decimal) of its cell.

Code sets with 256 characters are presented over two tables. The first table contains the lower part of the code set (the first 128 characters). The second table contains the upper of the code set (the second 128 characters). If the lower part is the same as ASCII, only the upper part is listed.

The SWCs associated a code set is printed underneath the code set table.

Notes:

- A shaded position represents unused code in the table.
- **ASP** stands for *Arabic Space.*
- **BDG** stands for *Blank Digit.*
- **LSP** stands for *Latin Space.*
- **NSP** stands for *Numeric Space.*
- **SAB** stands for *Start Arabic Boundary.*
- **SHY** stands for *Soft Hyphen.*
- **SLB** stands for *Start Latin Boundary.*

Supported Code Sets

	Code Set
A	AMEER
B	AL-ARABI
C	SEDCO (ESPRIT)
D	BEEHIVE
E	ZENTEC
F	EMULOG
G	ASMO-449
H	ASMO-708
I	IBM NLS upper
J	NAFITHA International upper
K	Sakhr upper
L	Windows

	Code Set
M	Wang
N	MA-1
O	MA-2
P	Old Beehive
0	ASCII
1	IBM 437 lower
2	IBM 437 upper
3	IBM 850 upper
4	IBM 860 upper
5	IBM 863 upper
6	IBM 865 upper
7	IBM 864 lower

Code Set	
8	DEC MCS upper
9	ISO-Latin 1 upper
10	IBM XBASIC lower
18	User Defined left
22	ASCII French A
23	ASCII French B
24	ASCII French Canadian
50	ARCII
51	ASMO-449
52	CODAR-UFD
54	COMTERM 341
55	COMTERM 541
56	User Defined right
58	COMTERM 348
59	DATA GENERAL
62	ASMO-449/PLUS
63	DEC/8/ASMO
64	AL-ARABI
71	IBM XBASIC upper
72	IBM APC upper
74	ICL CODAR
77	ICL ASMO-708
78	ASMO-708
79	A-DOS 709 upper
80	A-DOS 710 upper/96
81	A-DOS 711 upper
82	A-DOS 720 upper

Code Set	
83	A-DOS 708 upper
84	A-DOS 864 upper
87	ASMO-708/PLUS
88	DEC MCS mirror
89	ISO-Latin mirror
90	A-DOS 708 upper
91	NCR 96
92	NCR 64
93	NCR ASMO-708
94	HP Arabic-8
95	HP Enhanced lower
96	HP Enhanced upper
97	French-1/ASMO-708
98	ASMO-708/French-1
107	ICL Cross Range
108	ICL ASMO 449+
109	HP Arabic 8 Lower
110	HP Arabic 8 Upper
111	Wang
116	ISCII
119	Fesci
121	COMTERM 348/S
122	Reem
123	IBM 864 Font
124	IBM 1046
125	ASMO 708 UNIX

AMEER ID : A

HEX	00	10	20	30	40	50	60	70	
00			ASP	٠	@	ذ	ـَ	ـُ	0
01			!	١	ء	ر	ف	ـِ	1
02			"	٢	آ	ز	ق	ـّ	2
03			#	٣	أ	س	ك	–	3
04			$	٤	ؤ	ش	لا	ـْ	4
05			٪	٥	إ	ص	ل		5
06			&	٦	ئ	ض	م		6
07			'	٧	ا	ط	ن	×	7
08			)	٨	ب	ظ	ه	÷	8
09			(	٩	ة	ع	و		9
0A			*	:	ت	غ	ى		10
0B			+	؛	ث	[	ي	}	11
0C			،	>	ج	\	ـً	|	12
0D			-	=	ح	[	ـٌ	{	13
0E			.	<	خ	^	ـٍ	~	14
0F			/	؟	د	_	ـَ	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 60 Hex EAI: 7C Hex

SLI: 7E Hex ELI: 7C Hex

AL-ARABI ID : B

HEX	00	10	20	30	40	50	60	70	
00			ASP	٠	@	ذ	ـَ	ـً	0
01			!	١	ء	ر	ف	ـّ	1
02			"	٢	آ	ز	ق	ـٌ	2
03			#	٣	أ	س	ك		3
04			$	٤	ؤ	ش	ل		4
05			٪	٥	إ	ص	م	NSP	5
06			&	٦	ئ	ض	ن	–	6
07			'	٧	ا	ط	ه	÷	7
08			)	٨	ب	ظ	و	×	8
09			(	٩	ة	ع	ى	«	9
0A			*	:	ت	غ	ي	»	10
0B			+	؛	ث	]	ـٍ	}	11
0C			،	>	ج	\	ـّ	|	12
0D			-	=	ح	[	ـْ	{	13
0E			.	<	خ	^	ـَ	~	14
0F			/	؟	د	_	ـُ	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7C Hex EAI: 7E Hex

SLI: 7E Hex ELI: 7C Hex

SEDCO (ESPRIT) ID : C

HEX	00	10	20	30	40	50	60	70	
00			ASP	٠	@	ذ	_		0
01			!	١	ء	ر	ف		1
02			"	٢	آ	ز	ق		2
03			#	٣	أ	س	ك		3
04			$	٤	ؤ	ش	لا		4
05			٪	٥	إ	ص	ل		5
06			&	٦	ئ	ض	م		6
07			'	٧	ا	ط	ن		7
08			)	٨	ب	ظ	ه		8
09			(	٩	ة	ع	و		9
0A			*	:	ت	غ	ى		10
0B			+	؛	ث	[	ي	}	11
0C			,	<	ج	\		|	12
0D			-	=	ح	]		{	13
0E			،	>	خ	^		~	14
0F			/	؟	د	_		DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7E Hex

SLI: 7E Hex ELI: 7D Hex

BEEHIVE ID : D

HEX	00	10	20	30	40	50	60	70	
00			ASP	٠	ا	ط			0
01			!	١	ب	ظ			1
02			"	٢	ة	ع			2
03			#	٣	ت	غ			3
04			$	٤	ث	ف			4
05			٪	٥	ج	ق			5
06			ء	٦	ح	ك			6
07			ؤ	٧	خ	ل			7
08			)	٨	د	لا			8
09			(	٩	ذ	م			9
0A			*	:	ر	ن			10
0B			+	ىء	ز	ه		}	11
0C			،	<	س	و		|	12
0D			-	=	ش	ى		{	13
0E			.	>	ص	ي		~	14
0F			/	؟	ض	ـ		DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7E Hex

SLI: 7E Hex ELI: 7D Hex

ZENTEC ID : E

HEX	00	10	20	30	40	50	60	70	
00			ASP	٠	ْ	ت	ع		0
01			!	١	ً	ة	غ		1
02			"	٢	ٌ	ث	ف		2
03			“	٣	ٍ	ج	ق		3
04			\	٤	ُ	ح	ك		4
05			٪	٥	ٔ	خ	لآ		5
06			،	٦	ِ	د	لأ		6
07			’	٧	ّ	ذ	لإ		7
08			(	٨	–	ر	لا		8
09			)	٩	آ	ز	ل		9
0A			*	:	أ	س	م		10
0B			+	؛	إ	ش	ن	}	11
0C			.	ء	ؤ	ص	ه	|	12
0D			-	=	ىٔ	ض	و	{	13
0E			,	×	ا	ط	ى	~	14
0F			/	؟	ب	ظ	ي	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7C Hex EAI: 7E Hex

SLI: 7E Hex ELI: 7C Hex

EMULOG

ID : F

HEX	00	10	20	30	40	50	60	70	
00				0	@	P	ء	ط	0
01			!	1	A	Q	ا	ظ	1
02			"	2	B	R	ب	ع	2
03			#	3	C	S	ت	غ	3
04			$	4	D	T	ث	ف	4
05			٪	5	E	U	ج	ق	5
06			&	6	F	V	ح	ك	6
07			'	7	G	W	خ	لا	7
08			(	8	H	X	د	ل	8
09			)	9	I	Y	ذ	م	9
0A			*	:	J	Z	ر	ن	10
0B			+	;	K	[	ز	ه	11
0C			,	<	L	\	س	و	12
0D			-	=	M	]	ش	ي	13
0E			.	>	N	^	ص	ىٔ	14
0F			/	?	O	_	ض	DEL	15
	0	16	32	48	64	80	96	112	DEC

ASMO-449 ID : G

HEX	00	10	20	30	40	50	60	70	
00			ASP	٠	@	ذ	ـ	ً	0
01			!	١	ء	ر	ف	ٌ	1
02			"	٢	آ	ز	ق	ٍ	2
03			#	٣	أ	س	ك		3
04			$	٤	ؤ	ش	ل		4
05			٪	٥	إ	ص	م		5
06			&	٦	ئ	ض	ن		6
07			'	٧	ا	ط	ه		7
08			)	٨	ب	ظ	و		8
09			(	٩	ة	ع	ى		9
0A			*	:	ت	غ	ي		10
0B			+	؛	ث	]	ّ	}	11
0C			،	>	ج	\	ّ	|	12
0D			-	=	ح	[	ً	{	13
0E			.	<	خ	^	ٌ	~	14
0F			/	؟	د	_	ٍ	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

ASMO-708 ID : H

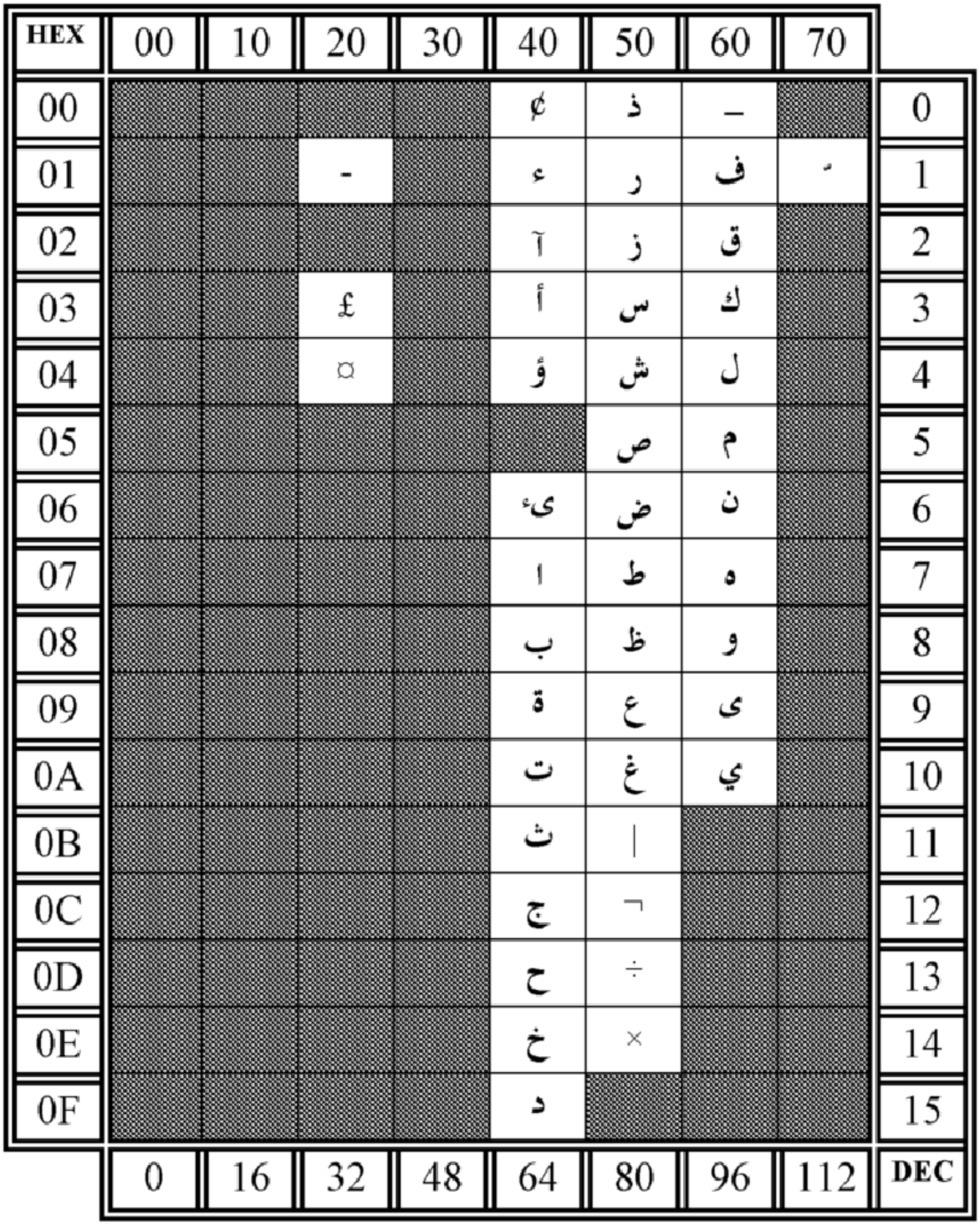
HEX	00	10	20	30	40	50	60	70	
00			ASP			ذ	_	ً	0
01					ء	ر	ف	ٌ	1
02					آ	ز	ق	ٍ	2
03					أ	س	ك		3
04			$		ؤ	ش	ل		4
05					إ	ص	م		5
06					ئ	ض	ن		6
07					ا	ط	ه		7
08					ب	ظ	و		8
09					ة	ع	ى		9
0A					ت	غ	ي		10
0B				؛	ث		ً		11
0C			،		ج		ٌ		12
0D			-		ح		ٍ		13
0E					خ		َ		14
0F				؟	د		ُ	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

IBM NLS upper

ID : I



HEX	00	10	20	30	40	50	60	70	
00					¢	ذ	ـ		0
01			-		ء	ر	ف	ً	1
02					آ	ز	ق		2
03			£		أ	س	ك		3
04			¤		ؤ	ش	ل		4
05						ص	م		5
06					ىٔ	ض	ن		6
07					ا	ط	ه		7
08					ب	ظ	و		8
09					ة	ع	ى		9
0A					ت	غ	ي		10
0B					ث	|			11
0C					ج	¬			12
0D					ح	÷			13
0E					خ	×			14
0F					د				15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

NAFITHA International upper ID : J

HEX	00	10	20	30	40	50	60	70	
00	NSP	LSP	ً	▒	┗	╨	ت	غ	0
01	▓	BDG	ـً	▒	┴	╤	ث	–	1
02	é	ERA	ٍ	▓	┬	╥	ج	ف	2
03	â	ô	ـٍ	│	├	╙	ح	ق	3
04	SAB	¤	ٌ	┤	─	╘	خ	ك	4
05	à	°	ء	╡	┼	╒	د	ل	5
06	SLB	û	آ	╢	╞	╓	ذ	م	6
07	ç	ù	أ	╖	╟	╫	ر	≈	7
08	ê	¨	ؤ	╕	╚	╪	ز	ن	8
09	ë	˙	إ	╣	╔	┘	س	ه	9
0A	è	ٔ	ىء	║	╩	┌	ش	▓	10
0B	ï	ٕ	ا	╗	╦	█	ص	و	11
0C	î	ٖ	ب	╝	╠	■	ض	ى	12
0D	▓	ٗ	ة	╜	═	▌	ط	ي	13
0E	▓	٘	«	╛	╬	▐	ظ	▪	14
0F	ASP	ٙ	»	┐	╧	▀	ع	▓	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

Sakhr upper ID : K

HEX	00	10	20	30	40	50	60	70	
00			ـَ	▒	ㄴ	ㅛ	ت	غ	0
01			ـُ	▒	ㅗ	ㅠ	ث	ف	1
02	é		ـِ	▒	ㅜ	ㅠ	ج	ق	2
03	â	ô	ـّ	ㅣ	ㅏ	ㅚ	ح	ك	3
04			ـْ	ㅓ	ㅡ	ㅕ	خ	ل	4
05	à		ء	ㅔ	ㅓ	ㅑ	د	م	5
06		û	آ	ㅖ	ㅐ	ㅒ	ذ	ن	6
07	ç	ù	أ	ㅖ	ㅐ	ㅖ	ر	ه	7
08	ê		ؤ	ㅖ	ㅚ	ㅔ	ز	°	8
09	ë		إ	ㅖ	ㅒ	ㄹ	س	و	9
0A	è		ىء	ㅖ	ㅛ	ㄱ	ش	ى	10
0B	ï		ا	ㅖ	ㅠ	■	ص	ي	11
0C	î		ب	ㅖ	ㅐ	■	ض	-	12
0D		ـٔ	ة	ㅖ	=	▌	ط	BDG	13
0E		ـٕ	LSP	ㅖ	ㅐ	▌	ظ	ERA	14
0F		ـٓ	ASP	ㅖ	ㅛ	■	ع		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

Windows ID: L

HEX	00	10	20	30	40	50	60	70	
00	□	□		°	À	ذ	à	ً	0
01	□	‘	،	±	ء	ر	ل	ٌ	1
02	,	’	¢	²	آ	ز	â	ٍ	2
03	*f*	“	£	³	أ	س	م	َ	3
04	„	”	¤	´	ؤ	ش	ن	ô	4
05	…	•	¥	µ	إ	ص	ه	ُ	5
06	†	–	¦	¶	ئ	ض	و	ِ	6
07	‡	—	§	·	ا	×	ç	÷	7
08	^	~	¨	¸	ب	ط	è	ّ	8
09	‰	™	©	¹	ة	ظ	é	ù	9
0A	Š	š	ª	؛	ت	ع	ê	ْ	10
0B	‹	›	«	»	ث	غ	ë	û	11
0C	Œ	œ	¬	¼	ج	ـ	ى	ü	12
0D	□		-	½	ح	ف	ي		13
0E	□		®	¾	خ	ق	î		14
0F	□	Ÿ	¯	؟	د	ك	ï	ÿ	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

WANG **ID: M**

HEX	00	10	20	30	40	50	60	70	
00		آ	س	٠	لا	ذ	لأ	ً	0
01		أ	ش	١	ـً	ر	لإ	ٌ	1
02		إ	ص	٢	آ	ز	لا	ٍ	2
03		ئ	ض	٣	أ	س	م	َ	3
04		ئ	£	٤	ؤ	ش	ن	ُ	4
05		ا	ع	٥	إ	ص	ه	ِ	5
06		ب	ع	٦	ئ	ض	و	ّ	6
07		ة	ع	٧	ا	ط	ى	ْ	7
08		ت	غ	٨	ب	ظ	ي	ي	8
09		ث	غ	٩	ة	ع	لإ	ى	9
0A		ج	غ	ق	ت	غ	لا	ي	10
0B		ج		؛	ث	ف	م	َ	11
0C		ح	،	ك	ج	ق	ن		12
0D	ـِ	ح	ف	ل	ح	ك	ه	ـ	13
0E	ً	خ	ف	لآ	خ	ل	ه		14
0F	٠	خ	ق	؟	د	لآ	ه	á	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

MUSSA'ED ALARBI/1 ID: N

HEX	00	10	20	30	40	50	60	70	
00	°	ß	ASP	٠	ڤ	ذ	ـ	ـ	0
01	·	∞	ـ	١	ء	ر	ف		1
02	•	∅	آ	٢	آ	ز	ق	ن	2
03	√	±	£	٣	أ	س	ک	ه	3
04	▒	½	¤	٤	ؤ	ش	ل	ھ	4
05	ـ	¼	أ	٥	ع	ص	م	ى	5
06	∣	≈	إ	٦	ئ	ض	ن	ي	6
07	┼	«	ـ	٧	ا	ط	ھ	غ	7
08	┤	»	ا	٨	ب	ظ	و	ق	8
09	┬	لأ	ب	٩	ة	ع	ى	لآ	9
0A	├	لأ	ت	ف	ت	غ	ي	لآ	10
0B	┴	لإ	ث	؛	ث	∣	ض	ل	11
0C	┐	لإ	،	٣	ج		ع	ك	12
0D	┌	لا	ج	ش	ح	÷	ه	ي	13
0E	└	لا	ح	ص	خ	×	غ	▪	14
0F	┘	ـ	خ	؟	د	ع	م		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

MUSSA'ED ALARBI/2 ID: O

HEX	00	10	20	30	40	50	60	70	
00	ء	د	م	▒	└	╨			0
01	آ	ذ	ن	▒	┴	╤			1
02	أ	ر	ه	▒	┬	╥			2
03	ؤ	ز	و	│	├	╙			3
04	إ	س	ى	┤	─	╘			4
05	ئ	ش	ي	╡	┼	╒			5
06	ا	ص	ـ	╢	╞	╓			6
07	ب	ض	،	╖	╟	╫			7
08	ة	ط	؛	╕	╚	╪			8
09	ت	ظ	؟	╣	╔	╛		ASP	9
0A	BSP	ع		║	╩	┌		LSP	10
0B	ث	غ		╗	╦	■			11
0C	ج	ف		╝	╠	■			12
0D	NSP	ق		╜	═	▌			13
0E	ح	ك	«	╛	╬	▌		·	14
0F	خ	ل	»	┐	╧	■			15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

OLD BEEHIVE ID: P

HEX	00	10	20	30	40	50	60	70	
00			ASP	٠	ا	ض	ئ		0
01			!	١	أ	ط	ء		1
02			"	٢	آ	ظ	ـ		2
03			#	٣	ب	ع	ى		3
04			$	٤	ت	غ			4
05			٪	٥	ث	ف			5
06			&	٦	ج	ق			6
07			'	٧	ح	ك			7
08			(	٨	خ	ل		\	8
09			)	٩	د	م		~	9
0A			*	:	ذ	ن		¦	10
0B			+	؛	ر	ه		^	11
0C			،	<	ز	ة		[	12
0D			-	=	س	و		]	13
0E			.	>	ش	ؤ	`	}	14
0F			/	@	ص	ي		{	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7E Hex

SLI: 7E Hex ELI: 7D Hex

ASCII ID : 0

HEX	00	10	20	30	40	50	60	70	
00				0	@	P	`	p	0
01			!	1	A	Q	a	q	1
02			"	2	B	R	b	r	2
03			#	3	C	S	c	s	3
04			$	4	D	T	d	t	4
05			%	5	E	U	e	u	5
06			&	6	F	V	f	v	6
07			'	7	G	W	g	w	7
08			(	8	H	X	h	x	8
09			)	9	I	Y	i	y	9
0A			*	:	J	Z	j	z	10
0B			+	;	K	[	k	{	11
0C			,	<	L	\	l	|	12
0D			-	=	M	]	m	}	13
0E			.	>	N	^	n	~	14
0F			/	?	O	_	o	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

IBM 437 lower

ID : 1

HEX	00	10	20	30	40	50	60	70	
00		▶		0	@	P	`	p	0
01	☺	◀	!	1	A	Q	a	q	1
02	☻	↕	"	2	B	R	b	r	2
03	♥	‼	#	3	C	S	c	s	3
04	♦	¶	$	4	D	T	d	t	4
05	♣	§	%	5	E	U	e	u	5
06	♠	▬	&	6	F	V	f	v	6
07	•	↨	'	7	G	W	g	w	7
08	◘	↑	(	8	H	X	h	x	8
09	○	↓	)	9	I	Y	i	y	9
0A	◙	→	*	:	J	Z	j	z	10
0B	♂	←	+	;	K	[	k	{	11
0C	♀	∟	,	<	L	\	l	|	12
0D	♪	↔	-	=	M	]	m	}	13
0E	♫	▲	.	>	N	^	n	~	14
0F	☼	▼	/	?	O	_	o	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

IBM 437 upper

ID : 2

HEX	00	10	20	30	40	50	60	70	
00	Ç	É	á	▒	└	╨	α	≡	0
01	ü	æ	í	▓	┴	╤	ß	±	1
02	é	Æ	ó	▓	┬	╥	Γ	≥	2
03	â	ô	ú	│	├	╙	π	≤	3
04	ä	ö	ñ	┤	─	╘	Σ	⌠	4
05	à	ò	Ñ	╡	┼	╒	σ	⌡	5
06	å	û	ª	╢	╞	╓	µ	÷	6
07	ç	ù	º	╖	╟	╫	τ	≈	7
08	ê	ÿ	¿	╕	╚	╪	Φ	°	8
09	ë	Ö	⌐	╣	╔	┘	θ	∙	9
0A	è	Ü	¬	║	╩	┌	Ω	•	10
0B	ï	¢	½	╗	╦	█	δ	√	11
0C	î	£	¼	╝	╠	▄	∞	ⁿ	12
0D	ì	¥	¡	╜	═	▌	ø	²	13
0E	Ä	Pt	«	╛	╬	▐	ε	■	14
0F	Å	ƒ	»	┐	╧	▀	∩		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex **EAI**: 7B Hex

SLI: 7B Hex **ELI**: 7D Hex

IBM 850 (Multilingual) upper ID : 3

HEX	00	10	20	30	40	50	60	70	
00	Ç	É	à	▒	└	ð	Ó	SHY	0
01	ü	æ	í	▓	┴	Ð	ß	±	1
02	é	Æ	ó	▓	┬	Ê	Ô	‗	2
03	â	ô	ú	│	├	Ë	Ò	¾	3
04	ä	ö	ñ	┤	─	È	õ	¶	4
05	à	ò	Ñ	Á	┼	ı	Õ	§	5
06	å	û	ª	Â	ã	Í	µ	÷	6
07	ç	ù	º	À	Ã	Î	þ	¸	7
08	ê	ÿ	¿	©	╚	Ï	Þ	°	8
09	ë	Ö	®	╣	╔	┘	Ú	¨	9
0A	è	Ü	¬	║	╩	┌	Û	·	10
0B	ï	ø	½	╗	╦	▉	Ù	¹	11
0C	î	£	¼	╝	╠	▄	ý	³	12
0D	ì	Ø	¡	¢	═	¦	Ý	²	13
0E	Ä	×	«	¥	╬	Ì	‒	■	14
0F	Å	ƒ	»	┐	¤	▀	´		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

IBM 860 (Portuguese) upper ID : 4

HEX	00	10	20	30	40	50	60	70	
00	Ç	É	à	▒	└	╨	α	≡	0
01	ü	À	í	▓	┴	╤	ß	±	1
02	é	È	ó	▓	┬	╥	Γ	≥	2
03	â	ô	ú	│	├	╙	π	≤	3
04	ã	õ	ñ	┤	─	╘	Σ	⌠	4
05	à	ò	Ñ	╡	┼	╒	σ	⌡	5
06	Á	Ú	ª	╢	╞	╓	µ	÷	6
07	ç	ù	º	╖	╟	╫	τ	≈	7
08	ê	Ì	¿	╕	╚	╪	Φ	°	8
09	Ê	Õ	Ò	╣	╔	┘	θ	•	9
0A	è	Ü	¬	║	╩	┌	Ω	·	10
0B	Ì	¢	½	╗	╦	█	δ	√	11
0C	Ô	£	¼	╝	╠	▄	∞	n	12
0D	ì	Ù	¡	╜	═	▌	ø	²	13
0E	Ã	Pt	«	╛	╬	▐	ε	■	14
0F	Â	Ó	»	┐	╧	▀	∩		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

IBM 863 (French-Canadian) upper ID : 5

HEX	00	10	20	30	40	50	60	70	
00	Ç	É	!	▒	└	╨	α	≡	0
01	ü	È	′	▓	┴	╤	ß	±	1
02	é	Ê	ó	▓	┬	╥	Γ	≥	2
03	â	ô	ú	│	├	╙	π	≤	3
04	Â	Ë	¨	┤	─	╘	Σ	⌠	4
05	à	Ï	‿	╡	┼	╒	σ	⌡	5
06	¶	û	³	╢	╞	╓	µ	÷	6
07	ç	ú	–	╖	╟	╫	τ	≈	7
08	ê	¤	Î	╕	╚	╪	Φ	°	8
09	ë	Ô	⌐	╣	╔	┘	θ	•	9
0A	è	Ü	¬	║	╩	┌	Ω	∘	10
0B	ï	¢	½	╗	╤	▉	δ	√	11
0C	î	£	¼	╝	╠	▄	∞	ⁿ	12
0D	‗	Ù	¾	╜	═	▌	∅	²	13
0E	À	Û	«	╛	╬	▐	ε	■	14
0F	§	ƒ	»	┐	╧	▀	∩		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

IBM 865 (Nordic) upper ID : 6

HEX	00	10	20	30	40	50	60	70	
00	Ç	É	á	▒	└	╨	α	≡	0
01	ü	æ	í	▓	┴	╤	ß	±	1
02	é	Æ	ó	▓	┬	╥	Γ	≥	2
03	â	ô	ú	│	├	╙	π	≤	3
04	ä	ö	ñ	┤	─	╘	Σ	⌠	4
05	à	ò	Ñ	╡	┼	╒	σ	⌡	5
06	å	û	ª	╢	╞	╓	µ	÷	6
07	ç	ú	º	╖	╟	╫	τ	≈	7
08	ê	ÿ	¿	╕	╚	╪	Φ	°	8
09	ë	Ö	⌐	╣	╔	┘	θ	•	9
0A	è	Ü	¬	║	╩	┌	Ω	·	10
0B	ï	ø	½	╗	╦	▉	δ	√	11
0C	î	£	¼	╝	╠	■	∞	n	12
0D	ì	Ø	¡	╜	═	▌	ø	²	13
0E	Ä	Pt	«	╛	╬	▐	ε	■	14
0F	Å	ƒ	¤	┐	╧	■	∩		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

IBM 864 lower ID : 7

HEX	00	10	20	30	40	50	60	70	
00		▶		0	@	P	'	p	0
01	☺	◀	!	1	A	Q	a	q	1
02	♪	↕	"	2	B	R	b	r	2
03	♫	‼	#	3	C	S	c	s	3
04	✲	¶	$	4	D	T	d	t	4
05	═	§	%	5	E	U	e	u	5
06	‖	▬	&	6	F	V	f	v	6
07	╬	↨	'	7	G	W	g	w	7
08	╣	↑	(	8	H	X	h	x	8
09	╦	↓	)	9	I	Y	i	y	9
0A	╠	→	*	:	J	Z	j	z	10
0B	╩	←	+	;	K	[	k	{	11
0C	╗	∟	,	<	L	\	l	|	12
0D	╔	↔	-	=	M	]	m	}	13
0E	╚	▲	.	>	N	^	n	~	14
0F	╗	▼	/	?	O	_	o	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

DEC MCS upper ID : 8

HEX	00	10	20	30	40	50	60	70	
00				º	À		à		0
01			¡	±	Á	Ñ	á	ñ	1
02			¢	²	Â	Ò	â	ò	2
03			£	³	Ã	Ó	ã	ó	3
04					Ä	Ô	ä	ô	4
05			¥	µ	Å	Õ	å	õ	5
06				¶	Æ	Ö	æ	ö	6
07			§	·	Ç	E	ç	e	7
08			¤		È	Ø	è	ø	8
09			©	¹	É	Ù	é	ù	9
0A			ª	º	Ê	Ú	ê	ú	10
0B			«	»	Ë	Û	ë	û	11
0C				¼	Ì	Ü	ì	ü	12
0D				½	Í	Ÿ	í	ÿ	13
0E					Î		î		14
0F				¿	Ï	ß	ï		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

ISO Latin-1 upper

ID : 9

HEX	00	10	20	30	40	50	60	70	
00			NBS	°	À	Ð	à	ð	0
01			¡	±	Á	Ñ	á	ñ	1
02			¢	²	Â	Ò	â	ò	2
03			£	³	Ã	Ó	ã	ó	3
04			¤	´	Ä	Ô	ä	ô	4
05			¥	µ	Å	Õ	å	õ	5
06			¦	¶	Æ	Ö	æ	ö	6
07			§	·	Ç	×	ç	÷	7
08			¨	¸	È	Ø	è	ø	8
09			©	¹	É	Ù	é	ù	9
0A			ª	º	Ê	Ú	ê	ú	10
0B			«	»	Ë	Û	ë	û	11
0C			¬	¼	Ì	Ü	ì	ü	12
0D			SHY	½	Í	Ý	í	ý	13
0E			®	¾	Î	Þ	î	þ	14
0F			■	¿	Ï	ß	ï	ÿ	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

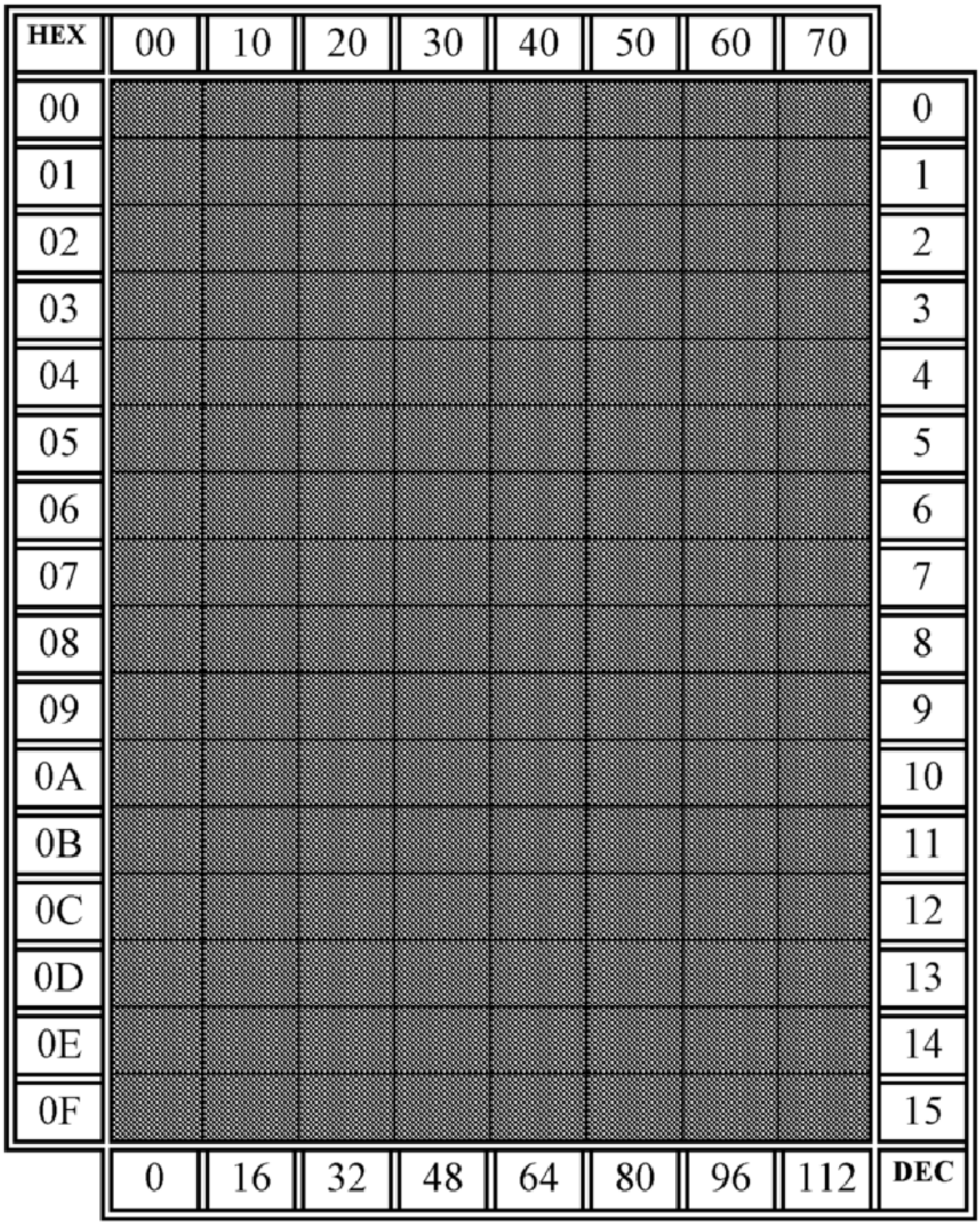
IBM XBASIC lower ID : 10

HEX	00	10	20	30	40	50	60	70	
00						&	-	ح	0
01						أ	/	خ	1
02					ّ	ؤ	ة	خ	2
03					ّ		ت	د	3
04					_		ت	ذ	4
05					ـا	ىء	ث	ر	5
06					ء	ا	ث	ز	6
07					آ	ا	ج	س	7
08					آ	ب	ج	س	8
09					أ	ب	ح	،	9
0A					£	!	|	:	10
0B					.	$	,	#	11
0C					<	*	٪	@	12
0D					(	)	–	′	13
0E					+	;	>	=	14
0F					|	¬	?	"	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

User Defined left ID : 18



SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

ASCII French A

ID : 22

HEX	00	10	20	30	40	50	60	70	
00				0	à	P	`	p	0
01			!	1	A	Q	a	q	1
02			"	2	B	R	b	r	2
03			£	3	C	S	c	s	3
04			$	4	D	T	d	t	4
05			%	5	E	U	e	u	5
06			&	6	F	V	f	v	6
07			'	7	G	W	g	w	7
08			(	8	H	X	h	x	8
09			)	9	I	Y	i	y	9
0A			*	:	J	Z	j	z	10
0B			+	;	K	¡	k	é	11
0C			,	<	L	ç	l	ù	12
0D			-	=	M	§	m	è	13
0E			.	>	N	^	n	¨	14
0F			/	?	O	_	o	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

ASCII French B ID : 23

HEX	00	10	20	30	40	50	60	70	
00				0	è	P	ç	p	0
01			!	1	A	Q	a	q	1
02			"	2	B	R	b	r	2
03			é	3	C	S	c	s	3
04			à	4	D	T	d	t	4
05			%	5	E	U	e	u	5
06			î	6	F	V	f	v	6
07			'	7	G	W	g	w	7
08			(	8	H	X	h	x	8
09			)	9	I	Y	i	y	9
0A			ê	:	J	Z	j	z	10
0B			+	;	K	â	k	{	11
0C			,	<	L	\	l	|	12
0D			-	=	M	ù	m	}	13
0E			.	>	N	û	n	ô	14
0F			/	?	O	_	o	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

ASCII French Canadian ID : 24

HEX	00	10	20	30	40	50	60	70	
00				0	à	P	ô	p	0
01			!	1	A	Q	a	q	1
02			"	2	B	R	b	r	2
03			#	3	C	S	c	s	3
04			$	4	D	T	d	t	4
05			%	5	E	U	e	u	5
06			&	6	F	V	f	v	6
07			'	7	G	W	g	w	7
08			(	8	H	X	h	x	8
09			)	9	I	Y	i	y	9
0A			*	:	J	Z	j	z	10
0B			+	;	K	â	k	é	11
0C			,	<	L	ç	l	ù	12
0D			-	=	M	ê	m	è	13
0E			.	>	N	î	n	û	14
0F			/	?	O	_	o	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

ARCII ID : 50

HEX	00	10	20	30	40	50	60	70	
00			ASP	٠	ـ	ء	ذ	ل	0
01			!	١	ـ	ا	ر	لا	1
02			"	٢	ـّ	أ	ز	لاً	2
03			×	٣	ـٰ	أ	ژ	لأ	3
04			$	٤	ـً	إ	س	لإ	4
05			%	٥	ـٌ	آ	ش	لآ	5
06			&	٦	ـٍ	ب	ص	م	6
07			÷	٧	ـَ	پ	ض	ن	7
08			(	٨	ـُ	ة	ط	ه	8
09			)	٩	ـِ	ت	ظ	و	9
0A			*	:	ـّ	ث	ع	ؤ	10
0B			+	؛	ـْ	ج	غ	ى	11
0C			،	<	ـٔ	چ	ف	ي	12
0D			-	=	ـّ	ح	ق	ىٔ	13
0E			,	>	ـٕ	خ	ك	\	14
0F			/	؟	ـّ	د	گ	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 5C Hex EAI: 7E Hex

SLI: 7E Hex ELI: 5C Hex

ASMO-449 ID : 51

HEX	00	10	20	30	40	50	60	70	
00			ASP	٠	@	ذ	–	ِ	0
01			!	١	ء	ر	ف	ّ	1
02			"	٢	آ	ز	ق	ٔ	2
03			#	٣	أ	س	ك		3
04			$	٤	ؤ	ش	ل		4
05			٪	٥	إ	ص	م		5
06			&	٦	ئ	ض	ن		6
07			'	٧	ا	ط	ه		7
08			)	٨	ب	ظ	و		8
09			(	٩	ة	ع	ى		9
0A			*	:	ت	غ	ي		10
0B			+	؛	ث	]	ً	}	11
0C			،	>	ج	\	ٌ	|	12
0D			-	=	ح	[	ٍ	{	13
0E			.	<	خ	^	َ	~	14
0F			/	؟	د	_	ُ	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

CODAR-UFD ID : 52

HEX	00	10	20	30	40	50	60	70	
00			ASP	٠	@	ذ	'	ـً	0
01			!	١	ء	ر	ف	ـً	1
02			"	٢	آ	ز	ق	ـٌ	2
03			#	٣	أ	س	ك		3
04			$	٤	ؤ	ش	ل		4
05			٪	٥	إ	ص	م		5
06			،	٦	ئ	ض	ن		6
07			'	٧	ا	ط	ه	÷	7
08			)	٨	ب	ظ	و	×	8
09			(	٩	ة	ع	ى	«	9
0A			*	:	ت	غ	ي	»	10
0B			+	؛	ث	]	ـً	}	11
0C			,	>	ج	\	ـّ	¦	12
0D			-	=	ح	[	ـٍ	{	13
0E			.	<	خ	^	ـَ		14
0F			/	؟	د	_	ـُ	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

Comterm 341 ID : 54

HEX	00	10	20	30	40	50	60	70	
00			ASP	٠	@	د		ى	0
01			!	١	–	ذ	غ		1
02			"	٢	ـ	ر	ف		2
03			#	٣		ز	ق		3
04			$	٤	ء	س	ك		4
05			%	٥	ا	ش	لا		5
06			&	٦	أ	ص	لأ		6
07			'	٧	إ	ض	لآ		7
08			(	٨	آ	ط	ل		8
09			)	٩	ب	ظ	م		9
0A			*	:	ت	ع	ن		10
0B			+	؛	ة	[	ه		11
0C			،	<	ث	\	ؤ		12
0D			-	=	ج	]	و		13
0E			.	>	ح	~	ىء		14
0F			/	؟	خ	_	ي	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7C Hex EAI: 7E Hex

SLI: 7E Hex ELI: 7C Hex

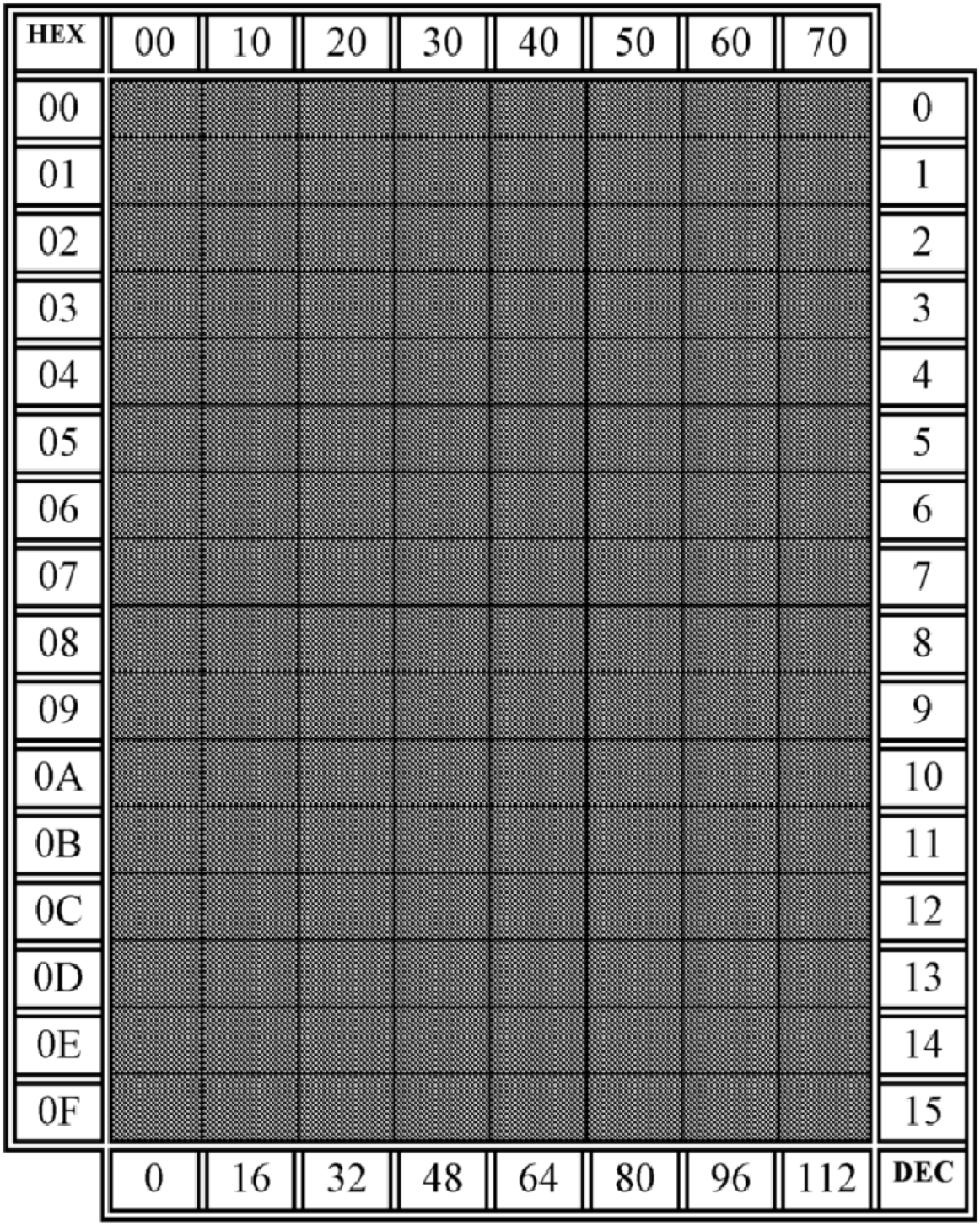
Comterm 541 ID : 55

HEX	00	10	20	30	40	50	60	70	
00			ASP	٠	@	د		ى	0
01			!	١	–	ذ	غ	ً	1
02			"	٢	ـ	ر	ف	ٌ	2
03			#	٣		ز	ق	ٍ	3
04			$	٤	ء	س	ك	َ	4
05			٪	٥	ا	ش	لا	ُ	5
06			&	٦	أ	ص	لأ	ِ	6
07			'	٧	إ	ض	لآ	"	7
08			(	٨	آ	ط	ل	ّ	8
09			)	٩	ب	ظ	م	ْ	9
0A			*	:	ت	ع	ن	°	10
0B			+	؛	ة	[	ه	ّ	11
0C			،	<	ث	\	ؤ		12
0D			-	=	ج	]	و		13
0E			.	>	ح	~	ىء		14
0F			/	؟	خ	_	ي	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7C Hex EAI: 7E Hex

SLI: 7E Hex ELI: 7C Hex

User Defined (Right) ID : 56



SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

Comterm 348 ID : 58

HEX	00	10	20	30	40	50	60	70	
00	ASP	خ	ظ	ل	ة	ـ			0
01	ا	خ		لا	ة	–			1
02	أ	د	ع	لا	و	١			2
03	إ	ذ	ع	لآ	ؤ	٢			3
04	آ	ر	ع	لآ	ي	٣			4
05	ب	ز	ع	لأ	ي	٤			5
06	ب	س	غ	لأ	ي	٥			6
07	ت	س	غ	م	ى	٦			7
08	ت	ش	غ	م	ى	٧			8
09	ث	ش	غ	ن	ىء	٨			9
0A	ث	ص	ف	ن	ىء	٩			10
0B		ص	ق	ن	ىء	٠			11
0C	ج	ض	ق	ه	ء	؟			12
0D	ج	ض	ك	ه	ء	،			13
0E	ح	ـ	ك	ه		؛			14
0F	ح	ط	ل	ه					15
	0	16	32	48	64	80	96	112	DEC

SAI: 7C Hex EAI: 7E Hex

SLI: 7E Hex ELI: 7C Hex

Data General

ID : 59

HEX	00	10	20	30	40	50	60	70	
00			ASP	٠	@	ذ	_	ُ	0
01			!	١	ء	ر	ف	ِ	1
02			"	٢	آ	ز	ق	ّ	2
03			#	٣	أ	س	ك	ٔ	3
04			$	٤	ؤ	ش	لا		4
05			%	٥	إ	ص	ل		5
06			&	٦	ىء	ض	م		6
07			'	٧	ا	ط	ن		7
08			)	٨	ب	ظ	ه		8
09			(	٩	ة	ع	و		9
0A			*	:	ت	غ	ى		10
0B			+	؛	ث	]	ي	}	11
0C			.	>	ج	\	ئ	|	12
0D			-	=	ح	[	ء	{	13
0E			،	<	خ	^	ؤ	~	14
0F			/	؟	د	_	ئ	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7E Hex

SLI: 7E Hex ELI: 7D Hex

ASMO-449/Plus ID : 62

HEX	00	10	20	30	40	50	60	70	
00			ASP	٠	@	ذ	ـ	ً	0
01			!	١	ء	ر	ف	ٌ	1
02			"	٢	آ	ز	ق	ٍ	2
03			#	٣	أ	س	ك		3
04			$	٤	ؤ	ش	ل		4
05			٪	٥	إ	ص	م	NSP	5
06			&	٦	ئ	ض	ن	ـ	6
07			'	٧	ا	ط	ه	لآ	7
08			)	٨	ب	ظ	و	لأ	8
09			(	٩	ة	ع	ى	لإ	9
0A			*	:	ت	غ	ي	لا	10
0B			+	؛	ث	]	ّ	}	11
0C			،	>	ج	\	ْ	¦	12
0D			-	=	ح	[	ٔ	{	13
0E			.	<	خ	^	ٓ	~	14
0F			/	؟	د	_	ٰ	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

DEC/8/ASMO

ID : 63

HEX	00	10	20	30	40	50	60	70	
00				(	٦		ش		0
01			ASP	*	٧	ىء	ص	ل	1
02			!	+	٨	ا	ض	م	2
03			"	،	٩	ب	ط	ن	3
04					:	ة	ظ	ه	4
05			#	-	؛	ت	ع	و	5
06				.	>	ث	غ	ى	6
07			$	/	=	ج	]	ي	7
08			٪		<	ح	\	NSP	8
09			&	٠	؟	خ	[	ـ	9
0A			'	١	@	د	^	}	10
0B			)	٢	ء	ذ	_	|	11
0C				٣	آ	ر	ـ	{	12
0D				٤	أ	ز	ف	~	13
0E					ؤ		ق		14
0F				٥	إ	س	ك	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

AL-ARABI ID : 64

HEX	00	10	20	30	40	50	60	70	
00			ASP	٠	@	ذ	'	ً	0
01			!	١	ء	ر	ف	ٌ	1
02			"	٢	آ	ز	ق	ٍ	2
03			#	٣	أ	س	ك		3
04			$	٤	ؤ	ش	ل		4
05			٪	٥	إ	ص	م	NSP	5
06			&	٦	ئ	ض	ن	–	6
07			'	٧	ا	ط	ه	÷	7
08			)	٨	ب	ظ	و	×	8
09			(	٩	ة	ع	ى	«	9
0A			*	:	ت	غ	ي	»	10
0B			+	؛	ث	]	ّ	}	11
0C			،	>	ج	\	ٌ	|	12
0D			-	=	ح	[	ٍ	{	13
0E			.	<	خ	^	َ	~	14
0F			/	؟	د	_	ُ	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7C Hex EAI: 7E Hex

SLI: 7E Hex ELI: 7C Hex

IBM XBASIC upper ID : 71

HEX	00	10	20	30	40	50	60	70	
00	ش	ظ	غ	ك	ء	؟	×	0	0
01	a	j	÷	ل	A	J		1	1
02	b	k	s	لآ	B	K	S	2	2
03	c	l	t	لآ	C	L	T	3	3
04	d	m	u	لأ	D	M	U	4	4
05	e	n	v	لأ	E	N	V	5	5
06	f	o	w		F	O	W	6	6
07	g	p	x		G	P	X	7	7
08	h	q	y	لا	H	Q	Y	8	8
09	i	r	z	لا	I	R	Z	9	9
0A	ش	ع	غ	ل		ى	١		10
0B	ص	ع	ف	م	ه	ى	٢	٦	11
0C	ص	ع	ف	م		ي		٧	12
0D	ض	ع	ق	ن	ه	ي	٣	٨	13
0E	ض	غ	ق	ن		ي	٤	٩	14
0F	ط	غ	ك	ه	و	٠	٥		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

IBM APC upper ID : 72

HEX	00	10	20	30	40	50	60	70	
00	°	ß	ASP	.	¢	ذ	_	ّ	0
01	•	∞	-	١	ء	ر	ف	ً	1
02	.	Ø	آ	٢	آ	ز	ق	ن	2
03	√	±	£	٣	أ	س	ك	ه	3
04	▒	½	¤	٤	ؤ	ش	ل	ه	4
05	_	¼	أ	٥	ع	ص	م	ى	5
06	|	≈	▒	٦	ىء	ض	ن	ي	6
07	┼	«	▒	٧	ا	ط	ه	غ	7
08	┤	»	ا	٨	ب	ظ	و	ق	8
09	┬	لأ	ب	٩	ة	ع	ى	لآ	9
0A	├	لأ	ت	ف	ت	غ	ي	لآ	10
0B	┴	▒	ث	؛	ث	|	ض	ل	11
0C	┐	▒	،	س	ج	¬	ع	ك	12
0D	┌	لا	ج	ش	ح	÷	غ	ي	13
0E	└	لا	ح	ص	خ	×	غ	■	14
0F	┘	ـ	خ	؟	د	ع	م		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

ICL-CODAR ID : 74

HEX	00	10	20	30	40	50	60	70	
00			ASP	٠	@	ذ	ـ	ً	0
01			!	١	ء	ر	ف	ٌ	1
02			"	٢	آ	ز	ق	ٍ	2
03			#	٣	أ	س	ك		3
04			$	٤	ؤ	ش	ل		4
05			%	٥	إ	ص	م		5
06			&	٦	ىء	ض	ن		6
07			'	٧	ا	ط	ه		7
08			)	٨	ب	ظ	و		8
09			(	٩	ة	ع	ى		9
0A			*	:	ت	غ	ي	لا	10
0B			+	؛	ث	]	ّ	}	11
0C			،	>	ج	\	ٓ	|	12
0D			-	=	ح	[	ٔ	{	13
0E			.	<	خ	^	ٰ	~	14
0F			/	؟	د	_	ٖ	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

ICL ASMO-708 ID : 77

HEX	00	10	20	30	40	50	60	70	
00			ASP			ذ	ـ	ً	0
01					ء	ر	ف	ٌ	1
02					آ	ز	ق	ٍ	2
03					أ	س	ك		3
04			$		ؤ	ش	ل		4
05					إ	ص	م		5
06					ئ	ض	ن		6
07					ا	ط	ه		7
08					ب	ظ	و		8
09					ة	ع	ى		9
0A					ت	غ	ي	لا	10
0B					ث		ّ		11
0C					ج		ْ		12
0D					ح		ّ		13
0E					خ		ّ		14
0F					د		ٔ	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

ASMO-708 ID : 78

HEX	00	10	20	30	40	50	60	70	
00			ASP			ذ	ـ	ً	0
01					ء	ر	ف	ٌ	1
02					آ	ز	ق	ٍ	2
03					أ	س	ك		3
04			$		ؤ	ش	ل		4
05					إ	ص	م		5
06					ئ ى	ض	ن		6
07					ا	ط	ه		7
08					ب	ظ	و		8
09					ة	ع	ى		9
0A					ت	غ	ي		10
0B				؛	ث		ً		11
0C			،		ج		ٌ		12
0D			–		ح		ٍ		13
0E					خ		َ		14
0F				؟	د		ُ	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

A-DOS 709 upper ID : 79

HEX	00	10	20	30	40	50	60	70	
00	Ç	SAB	ASP	٠	@	ذ	_	ً	0
01	ü	SLB	!	١	ء	ر	ف	ٌ	1
02	é	ـ	"	٢	آ	ز	ق	ٍ	2
03	â	ô	#	٣	أ	س	ك	َ	3
04	ä	ö	$	٤	ؤ	ش	ل	ُ	4
05	à	ò	٪	٥	إ	ص	م	ِ	5
06	å	û	&	٦	ىء	ض	ن	ّ	6
07	ç	ù	'	٧	ا	ط	ه	ْ	7
08	ê	ﻵ	)	٨	ب	ظ	و	ٔ	8
09	ë	ﻷ	(	٩	ة	ع	ى		9
0A	è	ﻹ	*	:	ت	غ	ي	.	10
0B	ï	ﻻ	+	؛	ث	]	ٗ	}	11
0C	î	BDG	،	>	ج	\	٘	|	12
0D	ì	LSP	-	=	ح	[	ٙ	{	13
0E		SAB	.	<	خ	^	ٚ	~	14
0F		f	/	؟	د	_	ٛ		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

A-DOS 710 upper/96 ID : 80

HEX	00	10	20	30	40	50	60	70	
00			ASP	▒	┗	┻	ت	غ	0
01			¤	▒	┴	┼	ث	ف	1
02			£	▒	┬	├	ج	ق	2
03			µ	┃	┣	═	ح	ك	3
04			°	┫	─	╪	خ	ل	4
05			ء	╋	┼	╞	د	م	5
06			آ	╫	╠	╥	ذ	ن	6
07			أ	╖	╟	╫	ر	ه	7
08			ؤ	╕	╚	╪	ز	و	8
09			إ	╣	╔	┘	س	ى	9
0A			ىٔ	╢	╩	┌	ش	ي	10
0B			ا	╗	╦	▉	ص	–	11
0C			ب	╝	╬	▄	ض	≡	12
0D			ة	╜	═	▌	ط	.	13
0E			«	╛	╬	▌	ظ	■	14
0F			»	┐	╧	■	ع		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

A-DOS 711 upper ID : 81

HEX	00	10	20	30	40	50	60	70	
00	NSP		ً	▒	ㄴ	ㅛ	ت	غ	0
01	ASP		ـَ	▒	ㅗ	ㅠ	ث	_	1
02	LSP		ٌ	▒	ㅜ	ㅠ	ج	ف	2
03	BDG		ـً	ㅣ	ㅏ	ㅚ	ح	ق	3
04	SAB		ٍ	ㅓ	_	ㅑ	خ	ك	4
05	SLB		ء	ㅕ	ㅓ	ㅔ	د	ل	5
06			آ	ㅖ	ㅑ	ㅠ	ذ	م	6
07	ERA	٠	أ	ㅠ	ㅐ	ㅐ	ر	≈	7
08		ـٌ	ؤ	ㅋ	ㅚ	ㅕ	ز	ن	8
09		ـَ	إ	ㅖ	ㅒ	ㄹ	س	ه	9
0A		ّ	ىء	ㅣ	ㅛ	ㄱ	ش		10
0B		ـً	ا	ㅋ	ㅠ	■	ص	و	11
0C		ً	ب	ㅢ	ㅐ	■	ض	ى	12
0D		ـُ	ة	ㅛ	=	▌	ط	ي	13
0E		ـُ	«	ㅢ	ㅐ	▌	ظ	■	14
0F		"	»	ㄱ	ㅜ	■	ع		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

A-DOS 720 upper ID : 82

HEX	00	10	20	30	40	50	60	70	
00	NSP	▓	ب	▒	└	╨	ض	≡	0
01	LSP	ـ	ة	▒	┴	╤	ط	‴	1
02	é	٠	ت	▓	┬	╥	ظ	"	2
03	â	ô	ث	│	├	╙	ع	‵	3
04	ASP	¤	ج	┤	─	╘	غ	´	4
05	à	–	ح	╡	┼	╒	ف	‶	5
06	BDG	û	خ	╢	╞	╓	µ	‵	6
07	ç	ù	د	╖	╟	╫	ق	≈	7
08	ê	ء	ذ	╕	╚	╪	ك	○	8
09	ë	آ	ر	╣	╔	┘	ل	•	9
0A	è	أ	ز	║	╩	┌	م	◦	10
0B	ï	ؤ	س	╗	╦	■	ن	√	11
0C	î	£	ش	╝	╠	▄	ه	n	12
0D	SLB	إ	ص	╜	═	▌	و	2	13
0E	SAB	ىء	«	╛	╬	▐	ى	▪	14
0F	▓	ا	»	┐	╧	▀	ي		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

A-DOS 708 upper ID : 83

HEX	00	10	20	30	40	50	60	70	
00			ASP			ذ	–	ً	0
01					ء	ر	ف	ٌ	1
02	é				آ	ز	ق	ٍ	2
03	â	ô			أ	س	ك	ّ	3
04			¤		ؤ	ش	ل	ْ	4
05	à		_		إ	ص	م		5
06		û			ئ	ض	ن	ٓ	6
07	ç	ù			ا	ط	ه	ٔ	7
08	ê				ب	ظ	و	ٕ	8
09	ë				ة	ع	ى		9
0A	è	LSP			ت	غ	ي		10
0B	ï	BDG		؛	ث		ً		11
0C	î	NSP	،		ج	■	ٌ	µ	12
0D					ح		ٍ	£	13
0E		SLB	«		خ		ً	■	14
0F		SAB	»	؟	د	■	ٌ		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

A-DOS 864 upper ID : 84

HEX	00	10	20	30	40	50	60	70	
00	°	ß	ASP	٠	¢	ذ	–	ً	0
01	•	∞	-	١	ء	ر	ف	ٌ	1
02	.	Ø	آ	٢	آ	ز	ق	ن	2
03	√	±	£	٣	أ	س	ك	ه	3
04	▒	½	¤	٤	ؤ	ش	ل	ه	4
05	–	¼	أ	٥	ع	ص	م	ى	5
06	|	≈	إ	٦	ىء	ض	ن	ي	6
07	┼	«	إ	٧	ا	ط	ه	غ	7
08	┤	»	ا	٨	ب	ظ	و	ق	8
09	┬	لأ	ب	٩	ة	ع	ى	لآ	9
0A	├	لأ	ت	ف	ت	غ	ي	لآ	10
0B	┴	لإ	ث	؛	ث	|	ض	ل	11
0C	┐	لإ	،	س	ج	¬	ع	ك	12
0D	┌	لا	ج	ش	ح	÷	غ	ي	13
0E	└	لا	ح	ص	خ	×	غ	■	14
0F	┘	ـ	خ	؟	د	ع	م		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

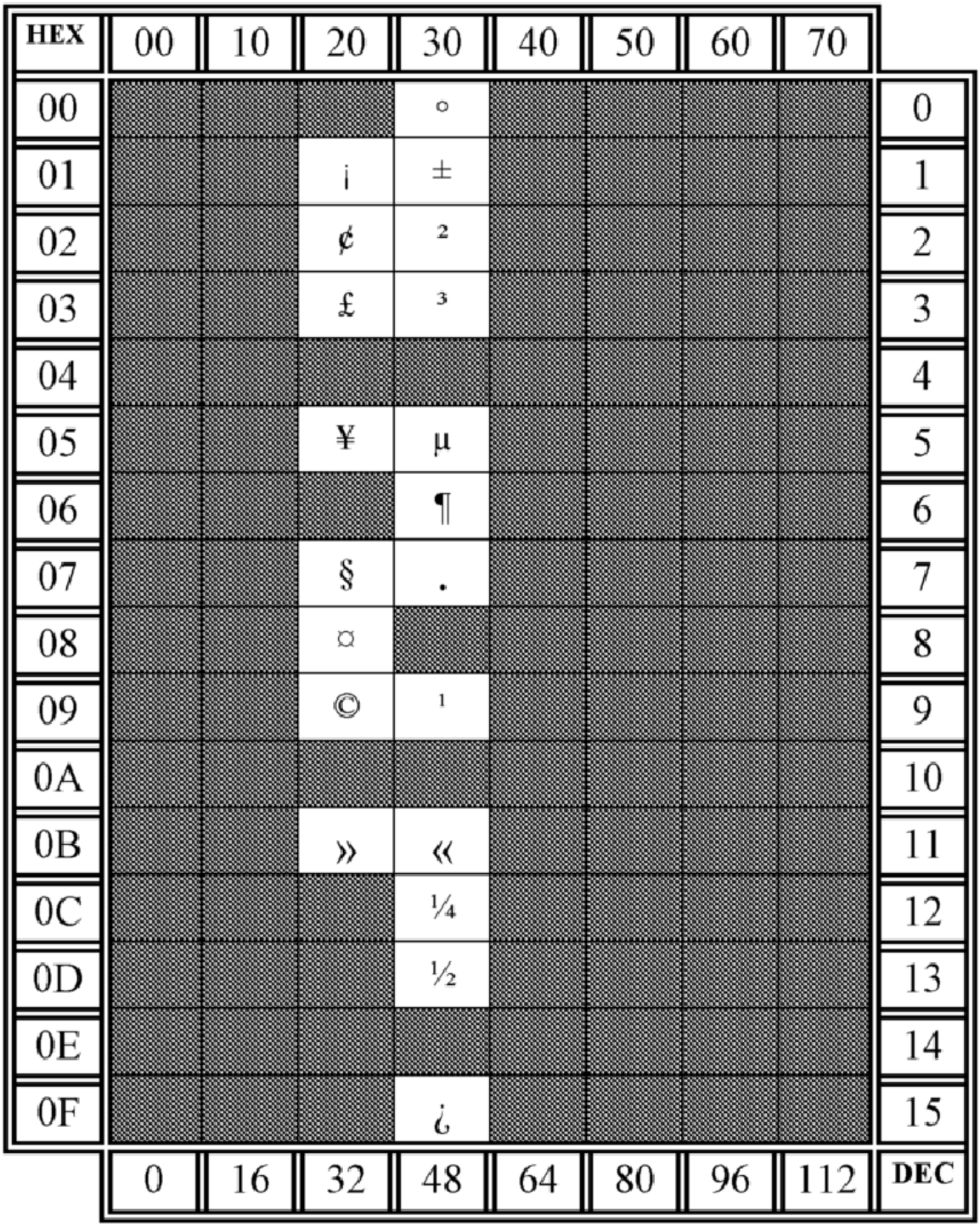
ASMO-708/Plus ID : 87

HEX	00	10	20	30	40	50	60	70	
00			NBS			ذ	ـ	ً	0
01					ء	ر	ف	ٌ	1
02					آ	ز	ق	ٍ	2
03					أ	س	ك		3
04			$		ؤ	ش	ل	BDG	4
05					إ	ص	م	NSP	5
06					ئ	ض	ن	ـ	6
07					ا	ط	ه	لآ	7
08					ب	ظ	و	لأ	8
09					ة	ع	ى	لإ	9
0A					ت	غ	ي	لا	10
0B				؛	ث		ّ	LSP	11
0C			،		ج		ْ	SLB	12
0D			SHY		ح		ٓ	ASP	13
0E					خ		ٔ	SAB	14
0F				؟	د		ٰ	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

DEC MCS mirror ID : 88

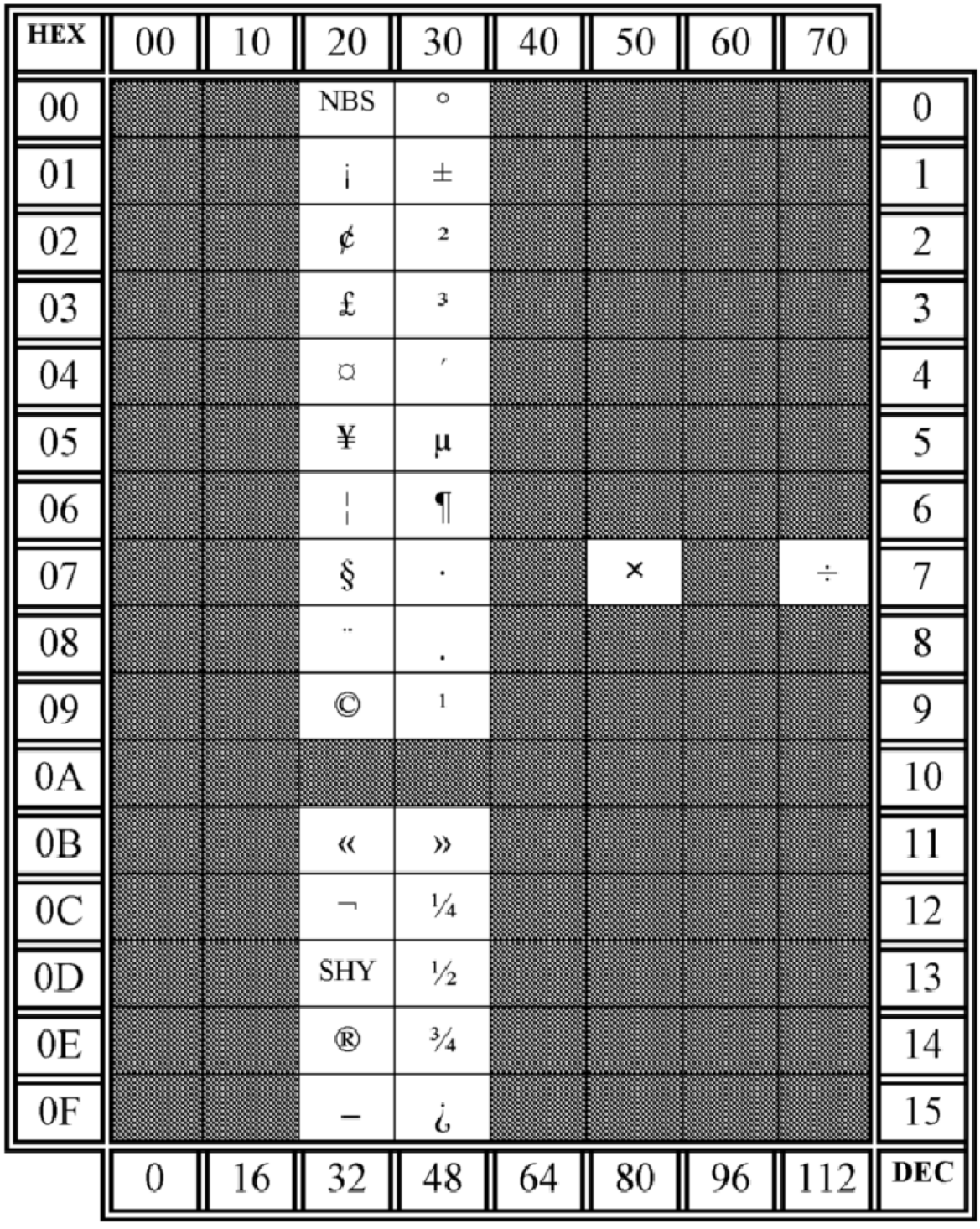


HEX	00	10	20	30	40	50	60	70	
00				º					0
01			¡	±					1
02			¢	²					2
03			£	³					3
04									4
05			¥	µ					5
06				¶					6
07			§	·					7
08			¤						8
09			©	¹					9
0A									10
0B			»	«					11
0C				¼					12
0D				½					13
0E									14
0F				¿					15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

ISO Latin-1 mirror ID : 89



HEX	00	10	20	30	40	50	60	70	
00			NBS	°					0
01			¡	±					1
02			¢	²					2
03			£	³					3
04			¤	´					4
05			¥	µ					5
06			¦	¶					6
07			§	·		×		÷	7
08			¨	¸					8
09			©	¹					9
0A									10
0B			«	»					11
0C			¬	¼					12
0D			SHY	½					13
0E			®	¾					14
0F			¯	¿					15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

A-DOS 710 upper/128 ID : 90

HEX	00	10	20	30	40	50	60	70	
00	´	°	ASP	▒	└	╨	ت	غ	0
01	¨	˝	¤	▒	┴	╤	ث	ف	1
02	é	¨	£	▓	┬	╥	ج	ق	2
03	â	ô	µ	│	├	╙	ح	ك	3
04	´	¨	°	┤	─	╘	خ	ل	4
05	à	¨	ء	╡	┼	╒	د	م	5
06	´	û	ĩ	╢	╞	╓	ذ	ن	6
07	ç	ù	أ	╖	╟	╫	ر	ه	7
08	ê	¨	ؤ	╕	╚	╪	ز	و	8
09	ë	¨	إ	╣	╔	┘	س	ى	9
0A	è	LSP	ىء	║	╩	┌	ش	ي	10
0B	ï	BDG	ا	╗	╦	▉	ص	–	11
0C	î	▒	ب	╝	╠	▄	ض	≡	12
0D	´	▒	ة	╜	═	▌	ط	·	13
0E	¸	SLB	«	╛	╬	▐	ظ	▪	14
0F	¨	SAB	»	┐	╧	▀	ع		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

NCR-96 ID : 91

HEX	00	10	20	30	40	50	60	70	
00			ASP	۰	ا	ح	ط	ڪ	0
01				۱	ا	خ	ظ	ڪ	1
02				۲	ب	خ	ع	ل	2
03			؟	۳	ب	د	ع	لا	3
04			،	٤	پ	ذ	ع	ل	4
05			٪	٥	پ	ر	ع	م	5
06			–	٦	ت	ز	غ	م	6
07			'	۷	ة	ژ	غ	ن	7
08			(	۸	ت	س	غ	ن	8
09			)	۹	ث	س	غ	ه	9
0A			*	آ	ث	ش	ف	ه	10
0B			+	آ	ج	ش	ف	ه	11
0C			,	ؤ	ج	ص	ق	و	12
0D			-	ىٔ	چ	ص	ق	ى	13
0E			.	ىٔ	چ	ض	ك	ي	14
0F			ـ	ء	ح	ض	ك	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

NCR-64 ID : 92

HEX	00	10	20	30	40	50	60	70	
00			ASP	٠	ر	ك			0
01			ﺎ	١	ز	ك			1
02			ا	٢	ژ	گ			2
03			ا	٣	س	گ			3
04			ء	٤	ش	ل			4
05			ئ	٥	ص	ل			5
06			ب	٦	ض	لا			6
07			پ	٧	ط	م			7
08			ت	٨	ظ	م			8
09			ث	٩	ع	ن			9
0A			ج	ح	ع	ن			10
0B			%	ح	غ	و			11
0C			ج	خ	غ	ه			12
0D			–	خ	ف	ه			13
0E			چ	د	ق	ى			14
0F			چ	ذ	ق	ي			15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

NCR ASMO-708 ID : 93

HEX	00	10	20	30	40	50	60	70	
00			ASP	٠		ذ	ـ	ً	0
01				١	ء	ر	ف	ٌ	1
02				٢	آ	ز	ق	ٍ	2
03				٣	أ	س	ك		3
04			¤	٤	ؤ	ش	ل		4
05				٥	إ	ص	م		5
06				٦	ئ	ض	ن		6
07				٧	ا	ط	ه		7
08				٨	ب	ظ	و		8
09				٩	ة	ع	ى		9
0A					ت	غ	ي		10
0B				؛	ث		ً	لا	11
0C			،		ج		ٌ	لأ	12
0D			SHY		ح		ٍ	لآ	13
0E					خ		َ		14
0F				؟	د		ُ		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

HP Arabic-8 ID : 94

HEX	00	10	20	30	40	50	60	70	
00			ASP	٠	@	ذ	ـ	ً	0
01			!	١	ء	ر	ف	ٌ	1
02			"	٢	آ	ز	ق	ٍ	2
03			#	٣	أ	س	ك		3
04			$	٤	ؤ	ش	ل		4
05			%	٥	إ	ص	م		5
06			&	٦	ئ	ض	ن	ّ	6
07			'	٧	ا	ط	ه	ُ	7
08			)	٨	ب	ظ	و	ِ	8
09			(	٩	ة	ع	ى		9
0A			*	:	ت	غ	ي		10
0B			+	؛	ث	]	ّ	}	11
0C			،	>	ج	\	ٌ	|	12
0D			-	=	ح	[	ً	{	13
0E			.	<	خ	^	َ	~	14
0F			/	؟	د		ُ		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

HP Enhanced lower ID : 95

HEX	00	10	20	30	40	50	60	70	
00			ASP	٠	@	لإ	ء	ح	0
01			!	١	ل	ب	ٔ	خ	1
02			"	٢	ل	ت	ٕ	ة	2
03			#	٣	ص	ث	ـٖ	ة	3
04			$	٤	ض	ف	ٗ	ا	4
05			%	٥	ج	ح	٘	ي	5
06			&	٦	أ	م	ٙ	ىٔ	6
07			'	٧	آ	ه	ٚ	ى	7
08			)	٨	إ	ة	ٛ	خ	8
09			(	٩	لا	×	ـٜ	س	9
0A			*	:	لأ	÷	ٝ	ش	10
0B			+	؛	لآ	]	ٞ	}	11
0C			،	>	لإ	\	ع	ا	12
0D			-	=	لا	[	غ	{	13
0E			.	<	لأ	^	ه	~	14
0F			/	؟	لآ	_	ج	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

HP Enhanced upper ID : 96

HEX	00	10	20	30	40	50	60	70	
00				ً	ل	ا	ث	م	0
01			ـ	ٌ	م	أ	ف	ن	1
02			ـ	ٍ	ن	آ	ع	ق	2
03			ً	ّ	ق	إ	غ	ي	3
04			ٌ	َ	ي	ا	ه	س	4
05			ٍ	ُ	ىء	ط	ج	ش	5
06			ّ	ِ	ى	ظ	ح	ص	6
07			ْ	ٔ	ؤ	_	خ	ض	7
08			ٓ	ٕ	د	يء	ع	ً	8
09			َ	ع	ذ	س	غ	ٌ	9
0A			ُ	غ	ر	ش	ى	ٍ	10
0B			ِ	ه	ز	ص	ج	َ	11
0C			ٔ	ج	و	ض	ح	ُ	12
0D			ٕ	ح	أ	ّ	خ	ِ	13
0E			ٖ	خ	آ	ب	ك	ْ	14
0F			ٗ	ك	إ	ت	ل		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

French-1/ASMO-708 ID : 97

HEX	00	10	20	30	40	50	60	70	
00			NBS	°	SLB	ذ	à	ً	0
01			¡	±	ء	ر	ل	ٌ	1
02			¢	²	آ	ز	â	ٍ	2
03			£	³	أ	س	م	َ	3
04			¤	´	ؤ	ش	ن	ô	4
05			¥	µ	إ	ص	ه	ُ	5
06			¦	¶	ئ	ض	و	ِ	6
07			§	·	ا	×	ç	÷	7
08			¨	¸	ب	ط	è	ّ	8
09			©	¹	ة	ظ	é	ù	9
0A			ª	º	ت	ع	ê	ْ	10
0B			«	»	ث	غ	ë	û	11
0C			¬	¼	ج	ـ	ى	ü	12
0D			SHY	½	ح	ف	ي	BDG	13
0E			®	¾	خ	ق	î	NSP	14
0F			¯	¿	د	ك	ï	SAB	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

ASMO-708/French-1 ID : 98

HEX	00	10	20	30	40	50	60	70	
00			NBS	ً	à	ذ	–	ـَ	0
01			¡	ٌ	ء	ر	ف	ـً	1
02			¢	ٍ	آ	ز	ق	ـُ	2
03			£	ـً	أ	س	ك	ë	3
04			$	ـٌ	ؤ	ش	ل	BDG	4
05			¥	ـٍ	إ	ص	م	NSP	5
06				¶	ى	ض	ن	î	6
07			§	ـّ	ا	ط	ه	ï	7
08				ـْ	ب	ظ	و	ô	8
09			©	ـٓ	ة	ع	ى	ù	9
0A			«	لا	ت	غ	ي	û	10
0B			»	؛	ث	â	ٔ	LSP	11
0C			،	¼	ج	ç	ٕ	SLB	12
0D			-	½	ح	è	ـٔ	ü	13
0E			®	¾	خ	é	ـٕ	SAB	14
0F				؟	د	ê	ٔ	ÿ	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

ICL CROSS RANGE ID: 107

HEX	00	10	20	30	40	50	60	70	
00			Space	0	ث	ف			0
01			‘	1	ج	ق			1
02			"	2	ح	ك			2
03	C		!	3	خ	لا			3
04	O		$	4	د	ل			4
05	N	C	ب	5	ذ	م			5
06	T	H	ت	6	ر	ن			6
07	R	A	’	7	ز	ه			7
08	O	R	)	8	س	و			8
09	L	A	(	9	ش	ئ			9
0A		C	*	:	ص	ي			10
0B		T	+	؛	ض	[			11
0C		E	،	>	ط	\			12
0D		R	-	=	ظ	ؤ			13
0E		S	.	<	ع	^			14
0F			/	؟	غ	_			15
	0	16	32	48	64	80	96	112	DEC

SAI: 5D Hex EAI: 5E Hex

SLI: 5B Hex ELI: 5E Hex

ICL ASMO-449 ID: 108

HEX	00	10	20	30	40	50	60	70	
00			Space	0	@	ذ	_	ـَ	0
01			!	1	ء	ر	ف	ـً	1
02			"	2	آ	ز	ق	ـُ	2
03	C		#	3	أ	س	ك		3
04	O		$	4	ؤ	ش	ل		4
05	N	C	٪	5	إ	ص	م		5
06	T	H	&	6	ئ	ض	ن		6
07	R	A	'	7	ء	ط	ه		7
08	O	R	)	8	ب	ظ	و		8
09	L	A	(	9	ة	ع	ى		9
0A		C	*	:	ت	غ	ي	لا	10
0B		T	+	؛	ث	]	ـٍ	{	11
0C		E	،	>	ج	\	ـّ	¦	12
0D		R	-	=	ح	[	ـْ	}	13
0E		S	.	<	خ	^	ـٌ	~	14
0F			/	؟	د	_	ـٔ	DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7B Hex EAI: 7D Hex

SLI: 7E Hex ELI: 7D Hex

HP-Arabic 8 Lower ID: 109

HEX	00	10	20	30	40	50	60	70	
00				٠	@	لإ	ء	ح	0
01			!	١	ل	ب	ً	خ	1
02			"	٢	ل	ت	ٌ	ة	2
03			#	٣	ص	ث	ٍ	ة	3
04			$	٤	ض	ف	ّ	ا	4
05			٪	٥	ج	ح	ْ	ي	5
06			&	٦	أ	م	ّ	ئ	6
07			'	٧	آ	ه	َ	ى	7
08			)	٨	إ	ة	ُ	خ	8
09			(	٩	لا	x	ِ	س	9
0A			*	:	لأ		°	ش	10
0B			+	؛	لآ	]	ّ	}	11
0C			،	>	لإ	\	ع	|	12
0D			-	=	لا	[	غ	{	13
0E			.	<	لأ	^	ه	~	14
0F			/	؟	لآ	_	ج		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

HP-Arabic 8 Upper ID: 110

HEX	00	10	20	30	40	50	60	70	
00				ـَ	ل	ا	ث	م	0
01				ـً	م	أ	ف	ن	1
02				ـُ	ن	آ	ع	ق	2
03			ا	ـٌ	ق	إ	غ	ي	3
04			”	ـِ	ي	ا	ه	س	4
05			ـّ	ـٍ	ئ	ط	ج	ش	5
06			ـْ	ـّ	ى	ظ	ح	ص	6
07			ـٓ	ـْ	ؤ	ـ	خ	ض	7
08			ـٔ	ـٓ	د	ئ	ع	ـّ	8
09			ـَ	ع	ذ	س	غ	ـّ	9
0A			ـُ	غ	ر	ش	ه	ـّ	10
0B			ـِ	ه	ز	ص	ج	ـَ	11
0C			ـٰ	ج	و	ض	ح	ـُ	12
0D			ـّ	ح	أ	ـّ	خ	ـِ	13
0E			ا	خ	آ	ب	ك	ـٰ	14
0F			”	ك	إ	ت	ل		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

WANG ID: 111

HEX	00	10	20	30	40	50	60	70	
00		آ	س	٠	لا	ذ	لأ	ً	0
01		أ	ش	١	ـً	ر	لإ	ٌ	1
02		إ	ص	٢	آ	ز	لا	ـً	2
03		ئ	ض	٣	أ	س	م	ـَ	3
04		ئ	£	٤	ؤ	ش	ن	ـٌ	4
05		ا	ع	٥	إ	ص	ه	ـِ	5
06		ب	ع	٦	ئ	ض	و	ـّ	6
07		ة	ع	٧	ا	ط	ى	ـٍ	7
08		ت	غ	٨	ب	ظ	ي	ي	8
09		ث	غ	٩	ة	ع	لإ	ى	9
0A		ج	غ	ق	ت	غ	لا	ي	10
0B		ج		؛	ث	ف	م	ـَ	11
0C		ح	،	ك	ج	ق	ن		12
0D	ـِ	ح	ف	ل	ح	ك	ه	ـ	13
0E	ـً	خ	ف	لآ	خ	ل	ه		14
0F	ـْ	خ	ق	؟	د	لآ	ه	á	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex

SLI: 7B Hex ELI: 7D Hex

ISCII ID: 116

HEX	00	10	20	30	40	50	60	70	
00			ASP	۰	ب	د	ض	گ	0
01			!	۱	ب	د	ض	گ	1
02			"	۲	پ	ذ	ط	ل	2
03			ی'	۳	پ	ذ	ط	ل	3
04			ﷺ	۴	ت	ر	ظ	م	4
05			%	۵	ت	ر	ظ	م	5
06			:	۶	ث	ز	ع	ن	6
07			؟	۷	ث	ز	ع	ن	7
08			(	۸	ج	ژ	غ	و	8
09			)	۹	ج	ژ	غ	ژ	9
0A			=	ء	ج	س	ف	ه	10
0B			+	ء	ج	س	ف	ه	11
0C			،	آ	چ	ش	ق	ی	12
0D			–	أ	چ	ش	ق	ی	13
0E			.	ا	خ	ص	ک	ئ	14
0F			/	أ	خ	ص	ک		15
	0	16	32	48	64	80	96	112	DEC

FESCI ID: 119

HEX	00	10	20	30	40	50	60	70	
00		~	ASP	٠	أ	ع	ص	ك	0
01	#	^	!	١	ز	ع	ض	گ	1
02	*	/	"	٢	أ	ح	ض	گ	2
03	…	&	=	٣	ء	ح	ط	ل	3
04	<	،	ﷺ	٤	ئ	خ	ط	ل	4
05	>	-	؛	٥	ب	خ	ظ	م	5
06	{	٠	:	٦	ب	د	ظ	م	6
07	}	ء	؟	٧	پ	ذ	ع	ن	7
08	[	٧	(	٨	پ	ر	ع	ن	8
09	]	ه	)	٩	ه	ز	غ	و	9
0A	'	ؤ	ئ	؛	ت	ژ	غ	ه	10
0B	'	ؤ	+	ص	ت	س	ف	ه	11
0C	\	٩	ئ	ض	ث	س	ف	ي	12
0D	|		–	آ	ث	ش	ق	ى	13
0E	%		.	ا	ج	ش	ق	ي	14
0F	ﷺ		/	ء	ج	ص	ک		15
	0	**16**	**32**	**48**	**64**	**80**	**96**	**112**	**DEC**

SAI: 7D Hex EAI: 7B Hex
SLI: 7B Hex ELI: 7D Hex

COMTERM 348/S ID: 121

HEX	00	10	20	30	40	50	60	70	
00					ظ	ل		ASP	0
01				خ			ة	-	1
02				د			و	١	2
03				ذ			ؤ	٢	3
04			آ	ر				٣	4
05				ز	غ			٤	5
06			ب				ي	٥	6
07				س				٦	7
08			ت			م	ى	٧	8
09				ش	غ		ىء	٨	9
0A			ث			ن		٩	10
0B			أ	ص		ف		.	11
0C					ق		ء	؟	12
0D			ج	ض				،	13
0E					ك			؛	14
0F			ح	ط		هـ		DEL	15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex
SLI: 7B Hex ELI: 7D Hex

Reem

ID: 122

HEX	00	10	20	30	40	50	60	70	
00	◌ً	ع	ف		┗	┸	α	≡	0
01	◌ٌ	ع	ف		┴	╤	β	±	1
02	◌ٍ	ح	ق	▒	┬	╥	Γ	≥	2
03	◌َ	خ	ك	│	├	╙	π	≤	3
04	◌ُ	د	لآ	┤	…	╘	Σ	⌠	4
05	◌ِ	ذ	لأ	┽	┼	╒	σ	⌡	5
06	◌ّ	ر	لإ	╢	╞	╓	µ	÷	6
07	◌ْ	ز	لا	╖	╟	╫	τ	≈	7
08	ؤ	س	ل	╕	╚	╪	Φ	◌	8
09	◌ٔ	ش	م	╣	╔	┘	Θ		9
0A	ىء	ص	ن	║	╩	┌	Ω		10
0B	ا	ض	ه	╗	╦	■	δ	√	11
0C	ب	ط	و	╝	╠	■	∞	n	12
0D	ة	ظ	ى	╜	═	▌	Ø	²	13
0E	ت	ع	«	╛	╬	▐	ε	-	14
0F	ث	غ	»	┐	╧	▄	∩		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex
SLI: 7B Hex

EAI: 7B Hex
ELI: 7D Hex

IBM 864 Font ID: 123

HEX	00	10	20	30	40	50	60	70	
00	ً	β		٠	¢	ذ	–	ـً	0
01	•	∞	-	١	ء	ر	ذ	ـً	1
02	.	Ø	آ	٢	آ	ز	ذ	ـْ	2
03	√	±	£	٣	أ	س	ر	ـّ	3
04	▒	½		٤	ؤ	ش	ز	ـٌ	4
05	…	¼	إ	٥	ع	ص	س	ـٍ	5
06	|	≈	!	٦	ئ	ض	ش	ـَ	6
07	┼	«	إ	٧	ا	ط	ص	ـُ	7
08	┤	»	ا	٨	ب	ظ	ض	ـِ	8
09	┬	٪	ب	٩	ة	ع	ط	ـّ	9
0A	├	٪	ت	ف	ت	غ	ظ	ـْ	10
0B	┴	٪	ث	:	ث	|	ع	ـٓ	11
0C	┐	٪	،	م	ج	ـ	غ	ـٔ	12
0D	└	٪	ج	ن	ح	ف	ـغ	ـٕ	13
0E	┘	٪	ح	ه	خ	ق	ـغ	■	14
0F	┌	؟	خ	و	د	ع	ـع		15
	0	16	32	48	64	80	96	112	DEC

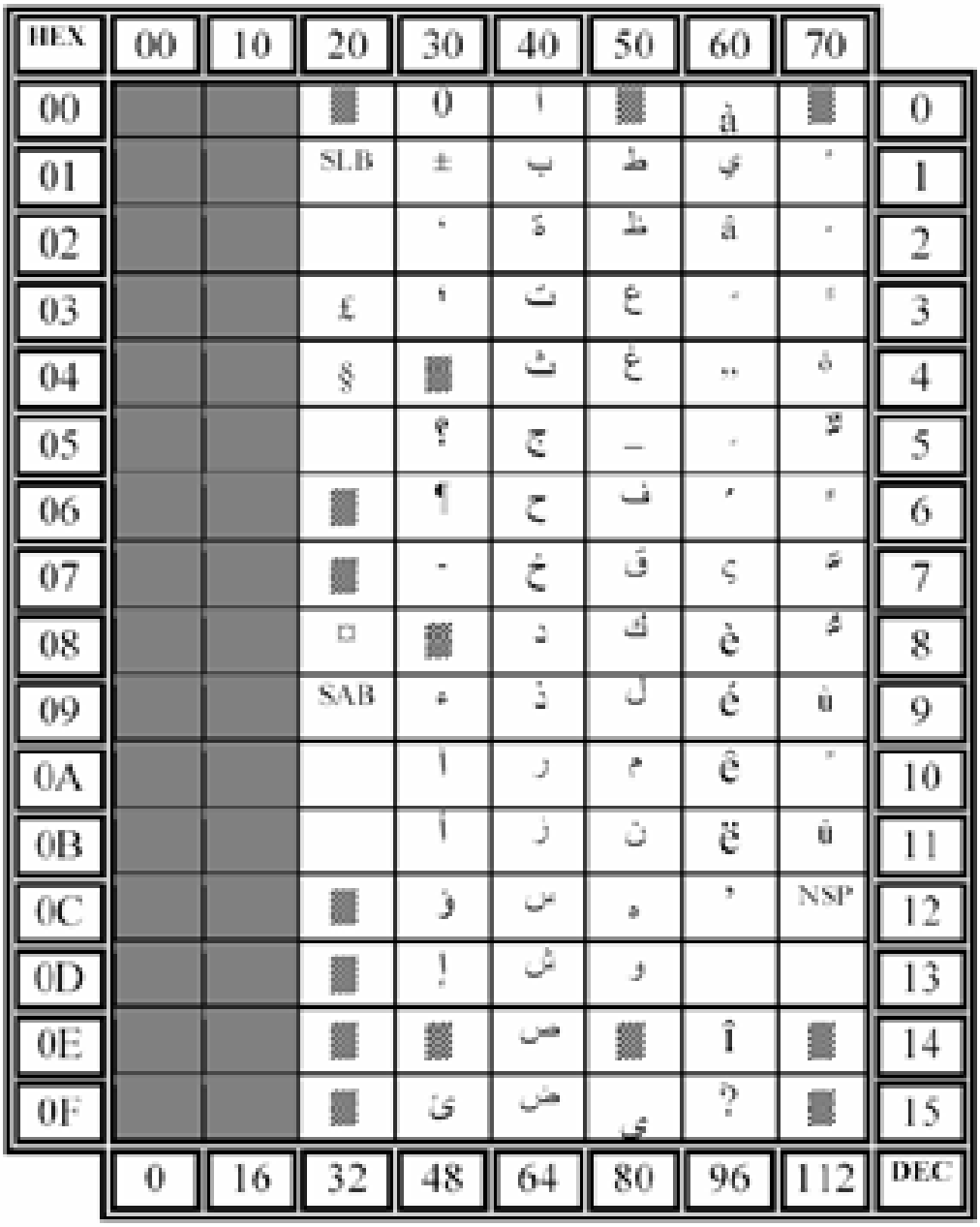
SAI: 7D Hex EAI: 7B Hex
SLI: 7B Hex ELI: 7D Hex

IBM 1046 ID: 124

HEX	00	10	20	30	40	50	60	70	
00	¦	ً	ASP	٠	ع	ذ	ـ	ْ	0
01	x	ٌ	آ	١	ء	ر	ف	ُ	1
02	÷	ٍ	أ	٢	آ	ز	ق	ٗ	2
03	س	ّ	¦	٣	أ	س	ك	ق	3
04	ش	ٔ		٤	ؤ	ش	ل	ك	4
05	ص	ئ	ا	٥	¦	ص	م	ل	5
06	ض	ى	ىٔ	٦	ىٔ	ض	ن		6
07	ـ	ي	ب	٧	ا	ط	هـ	لآ	7
08		ي	ت	٨	ب	ظ	و	لأ	8
09	■	غ	ث	٩	ة	ع	ى	لإ	9
0A	|	غ	ج	ف	ت	غ	ي	لا	10
0B	—	غ	ح	؛	ث	ع	ؤ	م	11
0C	⅂	لآ	،	ص	ج	آ	ً	ن	12
0D	⅃	لأ	ـ	ض	ح	أ	ٌ	هـ	13
0E	L	لإ	خ	ع	خ	ا	ٍ	هـ	14
0F	⅃	لا	س	؟	د	ف	ّ		15
	0	16	32	48	64	80	96	112	DEC

SAI: 7D Hex EAI: 7B Hex
SLI: 7B Hex ELI: 7D Hex

ASMO-708 UNIX ID: 125



HEX	00	10	20	30	40	50	60	70	
00			▒	0	ا	▒	à	▒	0
01			SLB	±	ب	ط	ي	'	1
02				'	ة	ظ	á	'	2
03			£	'	ت	ع	'	'	3
04			§	▒	ث	غ	¨	'	4
05				؟	ج	_	'	'	5
06			▒	¶	ح	ف	'	'	6
07			▒	·	خ	ق	ç	'	7
08			□	▒	د	ك	è	'	8
09			SAB	'	ذ	ل	é	ù	9
0A				أ	ر	م	ê	'	10
0B				أ	ز	ن	ë	ù	11
0C			▒	ؤ	س	ه	'	NSP	12
0D			▒	!	ش	و			13
0E			▒	▒	ص	▒	î	▒	14
0F			▒	ئ	ض	ى	?	▒	15
	0	16	32	48	64	80	96	112	DEC

SAI: "`", 60 Hex EAI: "|", 7C Hex
SLI: "~", 7E Hex ELI: "|", 7C Hex

C *Reference Codes*

This appendix contains the reference codes used by Printronix Line Matrix Arabic printers. These codes are used to build the *user defined code set*. Refer to section *Setting Code Sets*, Chapter 3, for more information on reference codes.

Table C.1 shows the reference codes. Each cell in the table contains a single character. The reference code of a character is obtained by adding the two coordinates (in hexadecimal or decimal) of its cell.

Note that reference codes 32 through 126 (decimal) represent characters that have the same ASCII code.

Notes:

- A shaded position represents unused code in the table.
- **ASP** stands for *Arabic Space.*
- **BDG** stands for *Blank Digit.*
- **LSP** stands for *Latin Space.*
- **NSP** stands for *Numeric Space.*
- **SAB** stands for *Start Arabic Boundary.*
- **SHY** stands for *Soft Hyphen.*
- **SLB** stands for *Start Latin Boundary.*

HEX	00	10	20	30	40	50	60	70	
00				0	C	P	c	p	0
#01			$	1	A	Q	a	q	1
02			%	2	#B	R	b	r	2
03			#&	3	C	S	c	s	3
04			$	4	D	T	d	t	4
05			(	5	E	U	e	u	5
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D *Contact Information*

Printronix Customer Support Center

IMPORTANT **Please have the following information available prior to calling the Printronix Customer Support Center:**

- Model number
- Serial number (located on the back of the printer)
- Installed options (i.e., interface and host type if applicable to the problem)
- Configuration printout:

  Thermal Printer
  See “Printing A Configuration” in the *Quick Setup Guide*.

  Line Matrix Printer
  Press PRT CONFIG on the control panel, then press Enter.
- Is the problem with a new install or an existing printer?
- Description of the problem (be specific)
- Good and bad samples that clearly show the problem (faxing of these samples may be required)

Americas	(714) 368-2686
Europe, Middle East, and Africa	(31) 24 6489 311
Asia Pacific	(65) 6548 4114
China	(86) 800-999-6836

http://www.printronix.com/support.aspx

Printronix Supplies Department

Contact the Printronix Supplies Department for genuine Printronix supplies.

Americas	(800) 733-1900
Europe, Middle East, and Africa	33 (0) 1 46 25 19 07
Asia Pacific	(65) 6548 4116 or (65) 6548 4182
China	(86) 400-886-5598
India	(800) 102-7869

http://www.printronix.com/supplies-parts.aspx

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