|  |  |  |  |
| --- | --- | --- | --- |
| **Address** | **Content** | **Instruction** | **Description** |
| 2000 | CC003A | LDD #$3A | Load ASCII code for “:” |
| 2003 | FEEE86 | LDX $EE86 | Load the vector for *putchar* routine |
| 2006 | 1500 | JSR 0,X | Print what’s in B on terminal |
| 2008 | FEEE84 | LDX $EE84 | Load the vector for *getchar* routine |
| 200B | 1500 | JSR 0,X | Get a new character in B |
| 200D | 8603 | LDAA #3 | Initialize loop counter |
| 200F | 36 | PSHA | Save the counter on stack |
| 2010 | 37 | PSHB | Save contents of B on stack |
| 2011 | CC0020 | LDD #$20 | Load B with a space |
| 2014 | FEEE86 | LDX $EE86 | Load the vector for *putchar* routine |
| 2017 | 1500 | JSR 0,X | Print it on terminal |
| 2019 | 33 | PULB | Get original character |
| 201A | FEEE86 | LDX $EE86 | Load the vector for *putchar* routine |
| 201D | 1500 | JSR 0,X | Print it on terminal |
| 201F | 32 | PULA | Retrieve the counter |
| 2020 | 43 | DECA | Decrement loop counter |
| 2021 | 26EC | BNE $200F | If counter <> 0, repeat |
| 2023 | 3F | SWI | Return to the monitor |

1. $2000 LDD #$3E

$2011 LDD #$3B

|  |  |
| --- | --- |
| **D** | |
| **A** | **B** | **X** | **Y** | **SP** | **PC** | **CCR** |
| 00 | 00 | 0000 | 0000 | 3C00 | 0400 | 1001 0000 |
| 00 | 00 | 0000 | 0000 | 2000 | 0403 | 1001 0000 |
| 00 | 00 | 0000 | 0000 | 1FFE | 0427 | 1001 0000 |
| 00 | 00 | 0000 | 0000 | 1FFE | 0429 | 1001 0000 |
| 00 | 00 | 0000 | 0000 | 1FFE | 042C | 1001 0100 |
|  |  |  |  |  |  |  |
| 0C | 9C | 0000 | 0000 | 1FFE | 0450 | 1001 0000 |
| 0C | 9C | 0000 | 0000 | 1FFE | 0456 | 1001 0000 |
| 0C | 9C | 0000 | 0000 | 1FFE | 045C | 1001 0000 |
| 0C | 9C | 0000 | 0000 | 2000 | 0405 | 1001 0000 |
| 07 | 9B | 0000 | 0000 | 2000 | 0408 | 1001 0000 |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

**Appendix B – Programming Model**

**Appendix B – ASCII Codes**

D

A

B

X

Y

PC

SP

Microprocessor

CCRR

S X H I N Z V C

Memory

$0000

$FFFF

ASCII is the American Standard Code for Information Interchange. It is a 7-bit code. Many 8-bit codes (such as ISO 8859-1, the Linux default character set) contain ASCII as their lower half. The international counterpart of ASCII is known as ISO 646. The following table contains the 128 ASCII characters.

