BULLETIN 1203-FM1 & 1203-FB1
Use with ProfiBus
(PLC-5, 1785-PFB/B and 1794-APB)

APPLICATION NOTE # PROBUS - 1

May 27, 1997

PURPOSE

The purpose of this document is to provide guidelines for wiring and control schemes for SCANport devices including Bulletin 1305 and 1336 PLUS AC Drives. This document is a suggestion only. Users must ensure that installations meet applicable codes and are suitable for the existing conditions.

WHAT THIS NOTE CONTAINS

This document contains information and an example ladder program that demonstrate how to control two 1305 drives using a PLC-5/40, 1785-PFB/B, 1794-APB and 1203-FM1/FB1 module and base.

INTENDED AUDIENCE

This application note should be used by personnel familiar with the hardware components and programming procedures necessary to operate SCANport devices. It is also assumed that the user has some familiarity with ProfiBus, the PLC-5 and ladder programming.

WHERE IT IS USED

The diagrams, parameter settings and auxiliary hardware used in this application note are designed to address specific issues in many different applications. Some changes by the user may be necessary to apply the concepts of this document to a specific application.

APPLICATION CONSIDERATIONS

These example ladder programs were written to be simple and clear examples and contain no fault handling abilities. Consult the PLC-5, 1785-PFB/B, 1794-APB and 1203-FM1/FB1 manuals for more information.

SCANport devices may assign different meanings to bits in the Logic Command and Status words. The usage of the Reference and Feedback words may also vary. Consult the manual for your SCANport device for more information.

ProfiBus Configuration

The screen prints in Figures 1 through 8 show the configuration of the ProfiBus and Flex I/O system for the example program.

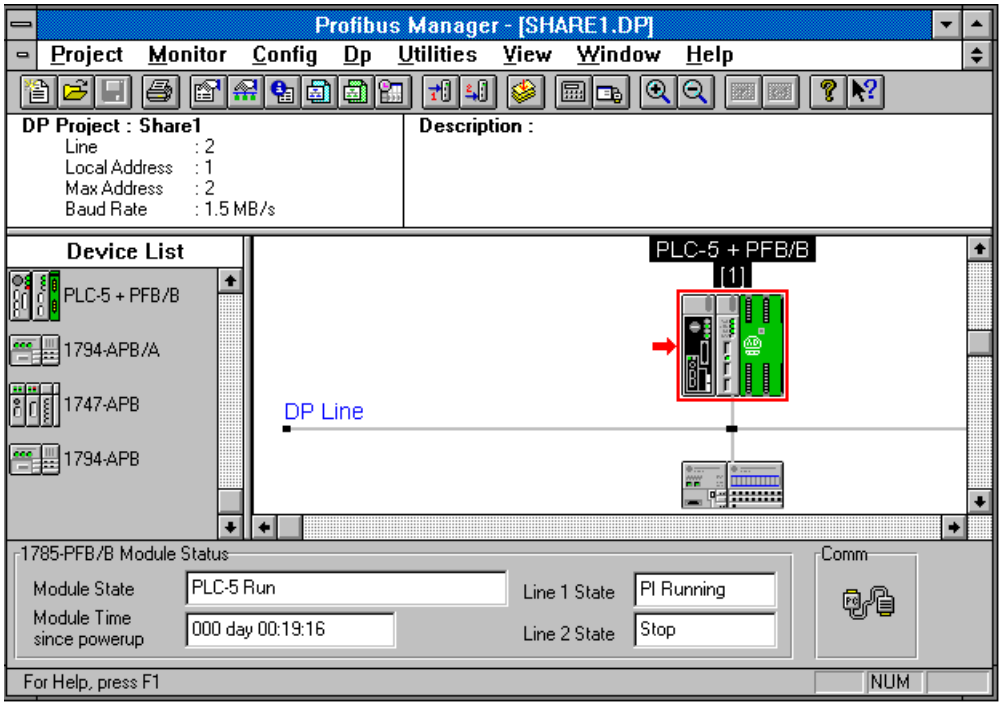

Figure 1 -- Basic Project Configuration

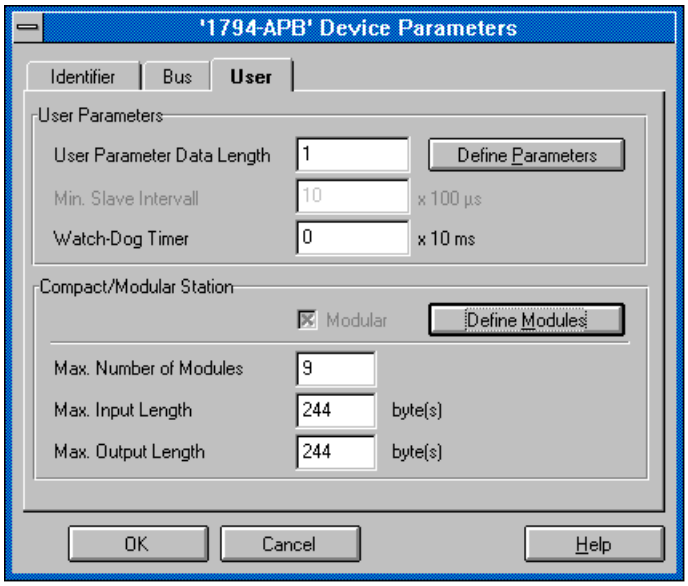

Figure 2 -- 1794-APB Configuration Screen

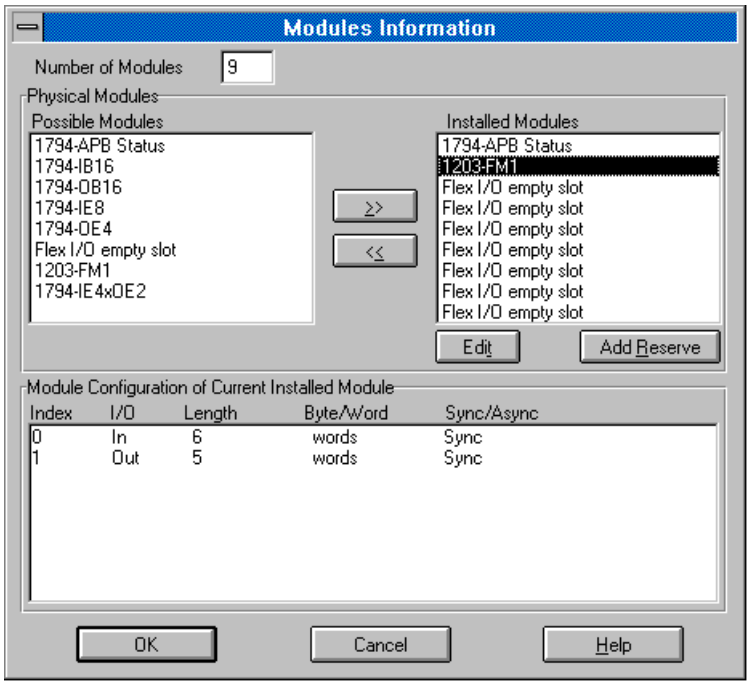

Figure 3 -- Module Definition

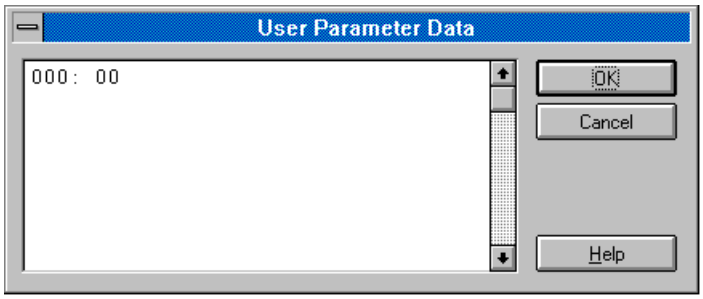

Figure 4 -- User Parameter Data Definition

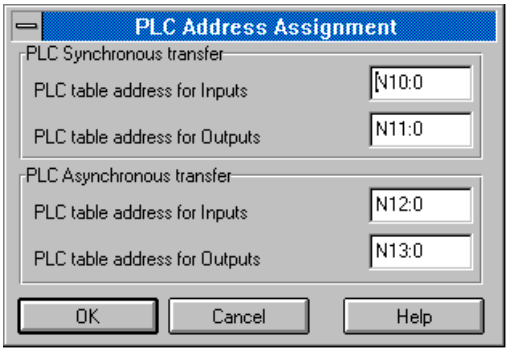

Figure 5 -- Data Table Addressing

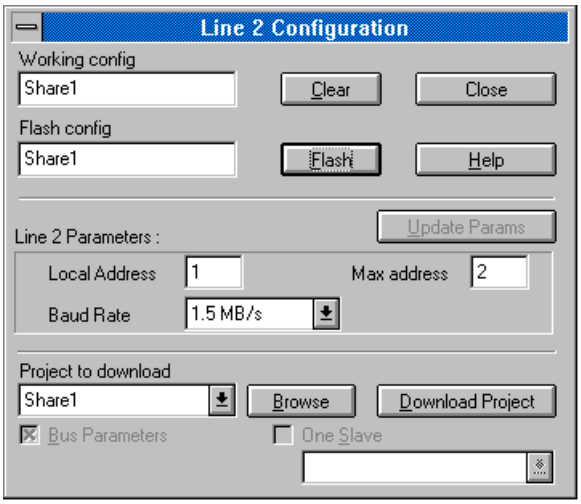

Figure 6 -- Configuring the DP Channel

DATA TABLE MAP

FILE		TYPE	LAST ADDRESS	SIZE (elements)	SIZE (words)
0	O	output	O:177	128	134
1	I	input	I:177	128	134
2	S	status	S:127	128	134
3	B	binary or bit	B3/15	1	7
4	T	timer	T4:0	1	9
5	C	counter	C5:0	1	9
6	R	control	R6:0	1	9
7	N	integer	N7:0	1	7
8	F	floating point	F8:0	1	8
9		unused		0	6
10	N	integer	N10:92	93	99
11	N	integer	N11:88	89	95
12		unused		0	6
13		unused		0	6
14		unused		0	6
15		unused		0	6
16		unused		0	6
17		unused		0	6
18		unused		0	6
19		unused		0	6
20	N	integer	N20:1	2	8

Figure 7 -- PLC5 Memory Map

```
;============================================================
; Allen-Bradley Profibus Manager Version 0.40b
;============================================================
; Documentation of the Address Assignment table
; Project : Profiapp
; Created by : Allen-Bradley
; File Create Date : 04/01/1996
;_____________________________________________
;
AAT header of project 'Profiapp'
;
AAT computed in Standard mode

AAT Header :
   Table Sync In   = N10:0 with 14 bytes length
   Table Sync Out  = N11:0 with 12 bytes length
   Table Async In  = N12:0 with 0 bytes length
   Table Async Out = N13:0 with 0 bytes length
   Table Status    = N10:7 with 170 bytes length
   Table Command   = N11:6 with 164 bytes length

AAT by slave
   Slave @=2 'Flex I/O Adapter'
      Phys. Module '1794-APB Status',
         Log. Mod. 0, Table Sync In                N10:0   Length 1 word
      Phys. Module '1794-APB Status',
         Log. Mod. 1, Table Sync Out               N11:0   Length 1 word
      Phys. Module '1203-FM1',
         Log. Mod. 0, Table Sync In                N10:1   Length 6 words
      Phys. Module '1203-FM1',
         Log. Mod. 1, Table Sync Out               N11:1   Length 5 words

Data I/O map
   Table  : Sync In
      Slave @=2 'Flex I/O Adapter',
         Phys. Mod. '1794-APB Status', Log. Mod. 0   N10:0   Length 1 word
      Slave @=2 'Flex I/O Adapter',
         Phys. Mod. '1203-FM1', Log. Mod. 0          N10:1   Length 6 words
   Table  : Sync Out
      Slave @=2 'Flex I/O Adapter',
         Phys. Mod. '1794-APB Status', Log. Mod. 1   N11:0   Length 1 word
      Slave @=2 'Flex I/O Adapter',
         Phys. Mod. '1203-FM1', Log. Mod. 1          N11:1   Length 5 words
   Table  : Async In
            (None)
   Table  : Async Out
            (None)

PLC-5 Data Table map
   Table Sync In    : last address = N10:92
   Table Sync Out   : last address = N11:88
```

Figure 8 -- Data Table Addressing

Ladder Program - SCANport Channel Enables

The section of program shown in Figure 9 enables both SCANport channels on the 1203-FM1 module.

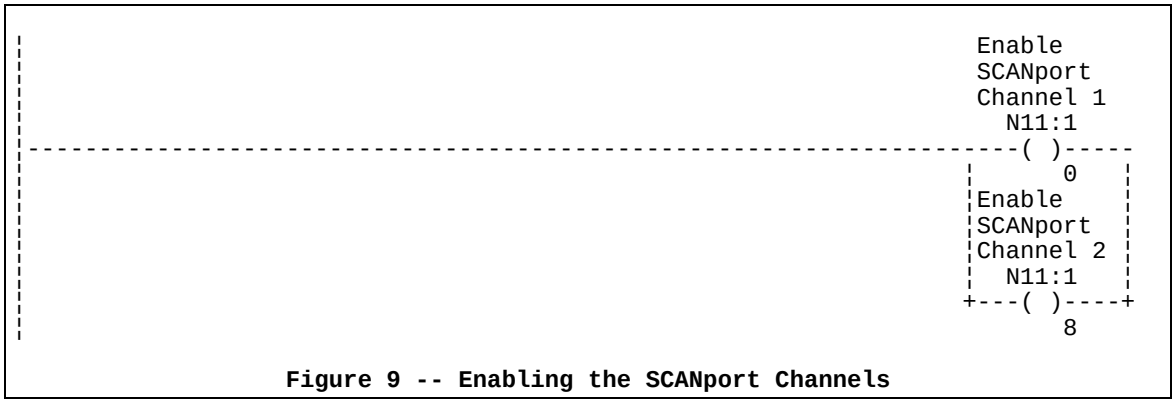

Figure 9 -- Enabling the SCANport Channels

Ladder Program - Drive 1 Start/Stop and Reference

The section of program shown in Figure 10 provides start/stop control and a frequency reference to the 1305 drive connected to SCANport channel 1. The User Start is a normally open pushbutton while the User Stop is a normally closed pushbutton.

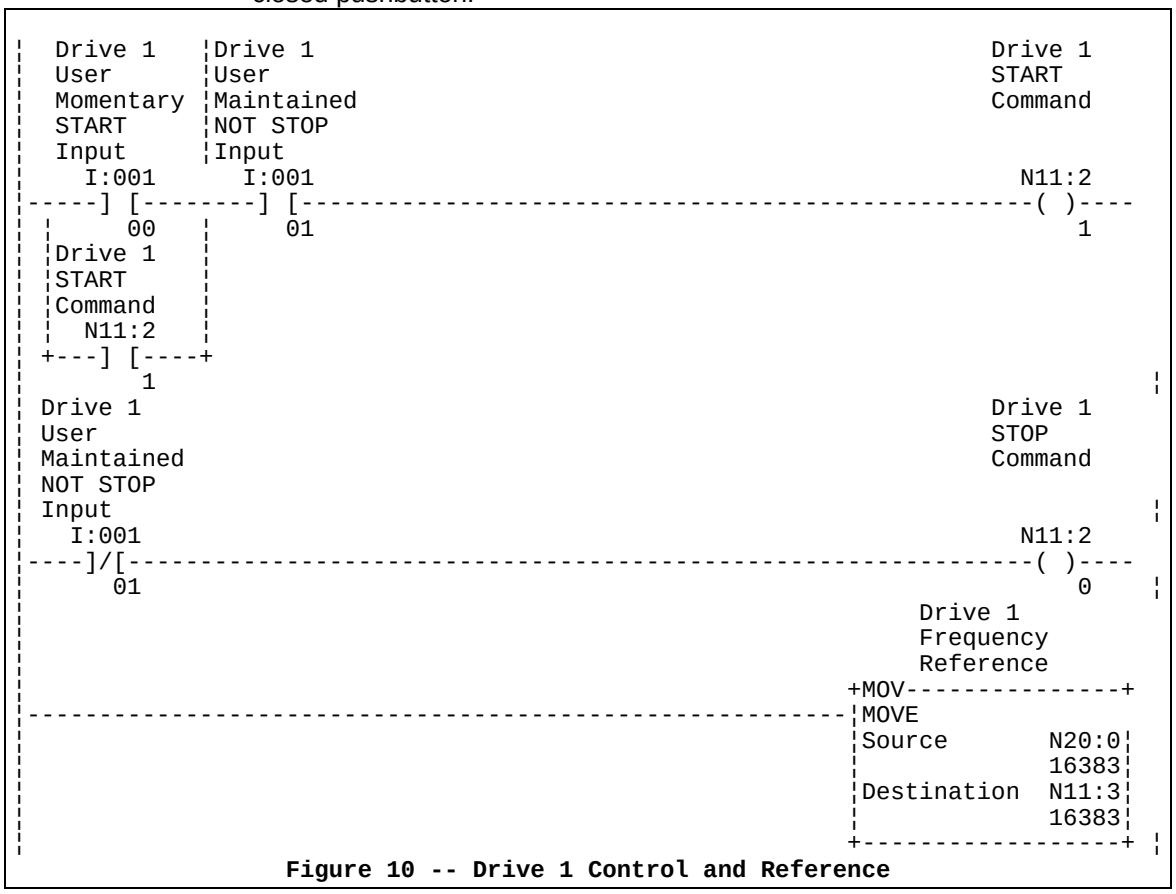

Figure 10 -- Drive 1 Control and Reference

Ladder Program -- Drive 2 Start/Stop and Reference

The section of program shown in Figure 11 provides start/stop control and a frequency reference to the 1305 drive connected to SCANport channel 2. This section functions identically to that shown in Figure 10 except for the changes in addresses.

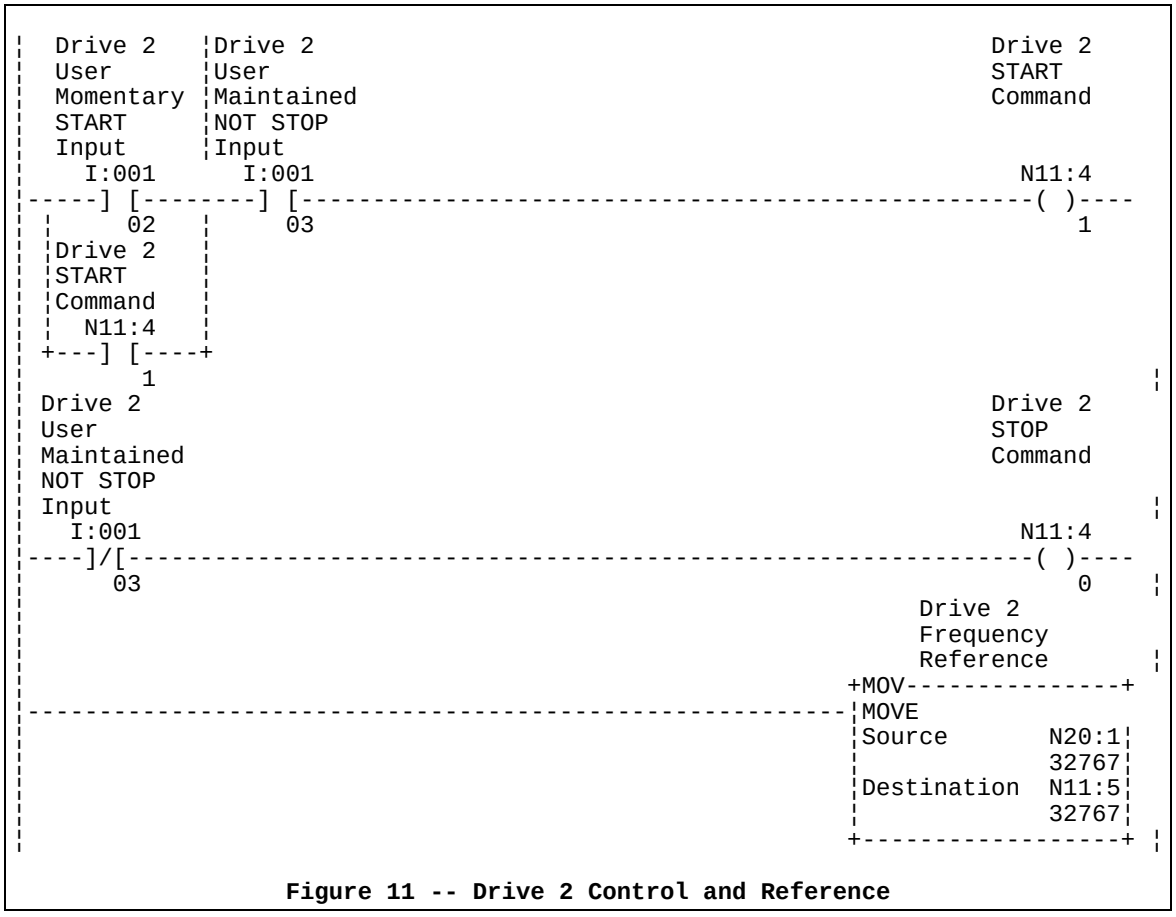

Figure 11 -- Drive 2 Control and Reference

Input Data Table File

The data table file shown in Figure 12 is the input data read from the 1203-FM1 via ProfiBus.

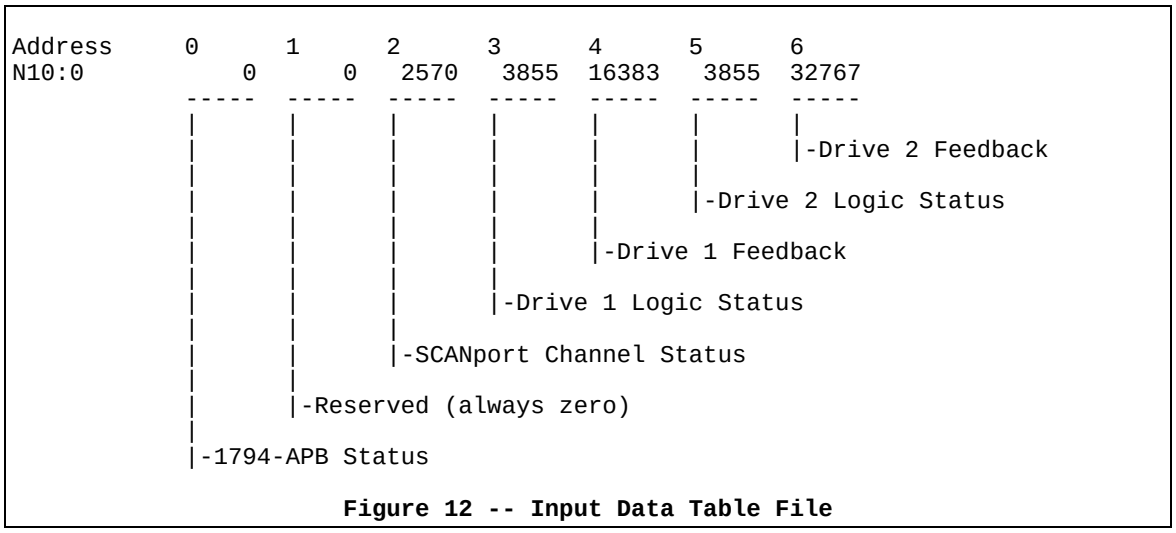

Figure 12 -- Input Data Table File

Output Data Table File

The data table file shown in Figure 13 is the data to be sent to the 1203-FM1 via ProfiBus.

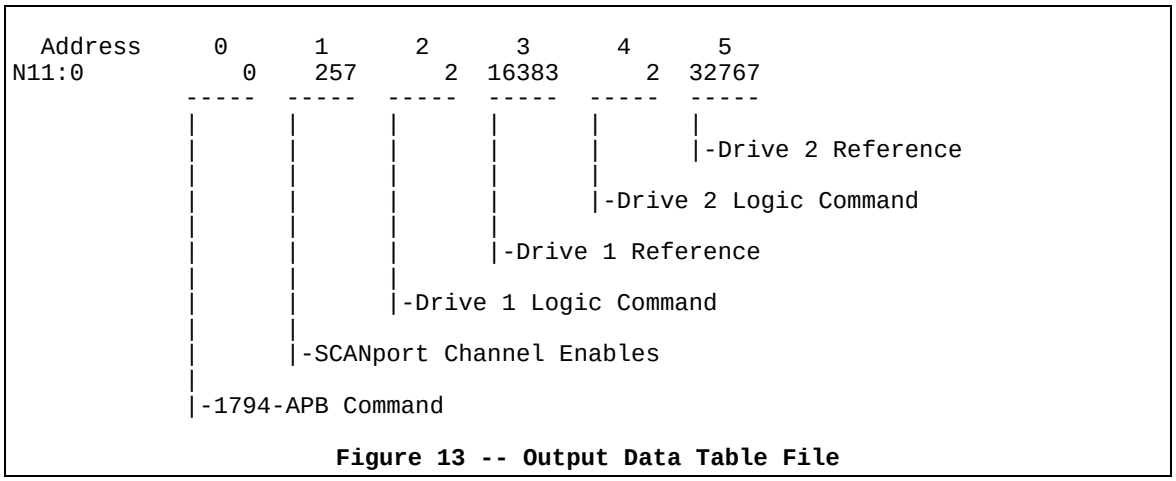

Figure 13 -- Output Data Table File