

VF64 Series SPB Functionfor Super Block Editor Insturction Manual

This manual describes about the tool to make the application software which works by SPB (Super Block) function of VF64.
Operation method of SPB Editor is as shown below.

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*** Note ***

Some terms on screen remains in Japanese. For these terms, some comment are given beside it.

1. Function of SPB(SuperBlock) Editor

This software has under-mentioned function.

1) Editing function

Edit application program which let SPB function of VF64 execute.

2) Function to make the file

Make the file, which is written into VF64.

This software translate the application program to Matrix Switch and make the data file which is written into the Flash Rom on VF64.

Although, this software does not have a function to write.

Other software "vf64from.exe" has a function to write.

3) Read function

Read Matrix Switch data which is set in VF64 and make it possible to edit.

2. Hardware requirement

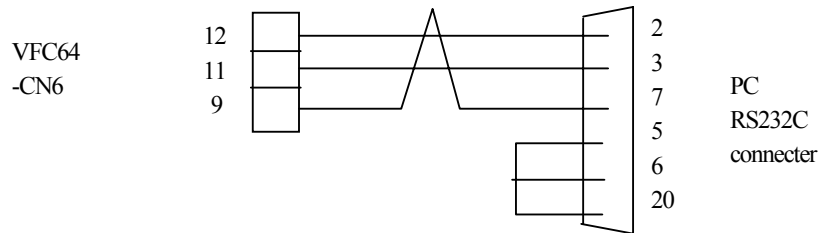
1) Personal computer which can operate WINDOWS95 or 98

2) Free memory on hard disk 50Mbyte or more

3) Ram size 64M byte or more

4) Distribution media CD (or FD)

5) Connector



wire length 3m

(6)Reference and others)

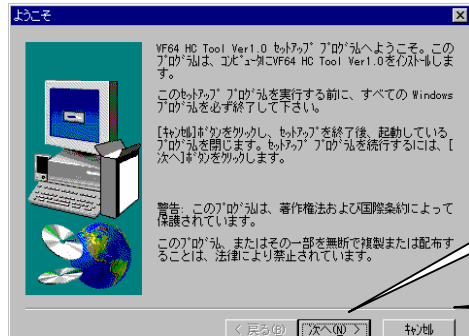
VF64 Series Super Block Application Manual

VF64 Series Flash Rom Writing Instruction Manual

3. Install

Sorry, an installatin prigram is made by Japanese. Although Letter of massage is changed, function is useful. Please, see this sheet and operate carefully.

- 1) Set CD or FD and click "Setup.exe", and then operate in accordance with instruction of screen. There are some data you may set, but it is recommended to select "Next" simply. — Summary is as follows

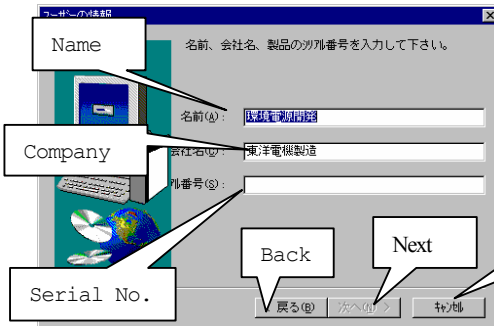


- (1) SetUp start
"wizard is in preparation" and then "Welcom" is displayed.

Click "Next"

Next

Cancel

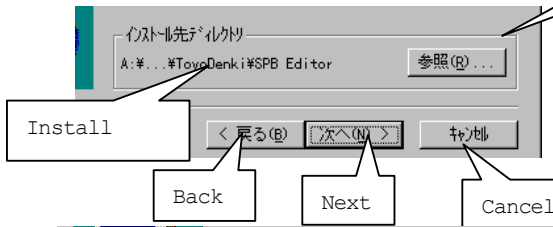


- (2) User infomation
"User Name", "Company Name" are displayed.
the data registered in personal computer are displayed.
They are changeable.
"Serial Number" that given when you receipt this software must be input.

Click "Next"

Next

Cancel



- (3) Select install directry

Default folder is "A:\Program Files\ToyoDenki\6 4 Series SPB Editor".

It is recommended to not change default folder.

Click "Next"

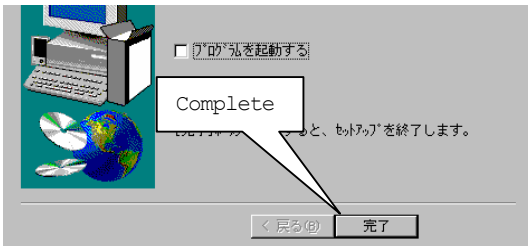
- (4) Display again above (2), (3)



By click of "Next", start file copy.
"Melting Files" displayed.

- (5) End of SetUp

"Completed" displayed, click it, and then end of SetUp.



4. Start-Up of Editor

Following 2 method are available.

- 1) On desk top, select “Start”-“Program”-“64 Series SPB Editor”-“SPB Editor” and make double click.
- 2) Make double click Icon. Icon is to be made, as ashort cut of HccPro.exe in above folder.
Main Menu is displayed.

5. Composition of software

5-1 table of main screens

- (1) [Main Menu] : This is displayed at the time of start-up
Menu of the next item(2) is displayed.
- (2) [SPB Array] : This is a screen to display SPB in orderof processing, and to edit (add or delete SPB)
- (3) [SPB Ref] : This is a list of usable SPB.
Select SPB in this list and insert into “SPB Array”.
- (4) [Var Ref] : This is a list of Variables which can be used to set SPB characteristics at next item(5) “SPB Set”.
Select Variables in this list and input to “SPB Set”.
- (5) [SPB Set] : Displays internal block diagram of each SPB.
Designate Input, Output, Control Constants by address or label.

5-2 Function table of main menu

Menu	Function		
[File]	[New]	Make application program newly.	
	[Open]	Read Matrix Switch and Input Data from file.	
	[Save As]	Save Matrix Switch and Input Data File.	
	[Printer Set]	Set Printer and sheet format	
	[Print]	[Input Data List] [Matrix Switch]	Display Input Data and print out. Display Matrix Switch and print out.
	[Colse]	Close data in editing	
	[Exit]	End of program.	
[Display]	[SPB Arr]	Display form [SPB Array].	
	[SPB Ref]	Display Form [SPB Reference].	
	[SPB Set]	Display form [SPB Set].	
	[Var Ref]	Display form [Var Ref].	
[Edit]	[Insert]	Insert SPB into [SPB Array].	
	[Delete]	Delete SPB in [SPB Array].	
[Execut]	[Down Load from VF]	Read-in matrix switch from HC *1	
[Option]	[Comm.Set]	Set communication port number.	
[Help]	[Console list]	Display the reference table of console setting.	
	[HC output list]	Display the table of output of SPB.	
	[Version]	Infomation about software version etc.	

At each point, executable menu only is displayed.

*1:’HC’ means SPB function.

File Name: B:\コンピュータ\ソフト\worknow#\hcbssil

File Name: sbdata
Ver. 1992-00-00 00:00
Left Memory 1G 66.4
Switch 955
Output 54
RAM 30

SPB Array

Step	SPB NAME
01	MULT1
02	JMPS1
03	EARC1
04	BITJ1
05	PI3A1
06	DLRG1
07	DLRG2
08	CMPA1
09	BITJ2
10	JMPS2
11	JMPW1
12	JMPW2
13	BEND
14	
15	
16	
17	
18	
19	
20	
21	
22	

PI3A
ファイル(F) ヘルプ(H)
PI3A1 Type:2Ch Times: 13.8 μsec

L EARC11 → E1
 L SpdFb → E2
 L bitOFF → B3 → no Intg 積分無し
 L BITJ1 → B2 → Stop 停止
 L bitOFF → B1 → Hold ホールド

L P-45
 Kp
 Ki
 L P-55
 U1
 Hi
 Li

EARC1
ファイル(F) ヘルプ(H)
EARC1 Type:48h Times: 7.4 μsec

L AnTermin → E1
 U1 → EARC i1
 20000

SPB Ref.
ADDR
BEND
BITJ
BITW
BSEL
CMPA
DBAN
DLG3
DLRG
DRPC
DSEL
EARC
FCAN
FFWD
FUNC
HYSC
JMPS
JMPW
LAG1
MCAN
MRHF

Var. Ref.
MULT1
JMPS11
EARC11
BITJ11
PI3A11
DLRG11
DLRG21
CMPA11
BITJ21
JMPS21
bitOFF
bitON
NULL
P20000
M20000
AsrStop
Ctrl Const
to Seq
from Seq
to Comm
from Comm
AnTermin
IsoTermin
SpdCmdTm
TrnCmdTm
off

スタート エクスプローラ - worknow Microsoft Word 64 SPB Editor 9:30

6. Editor function

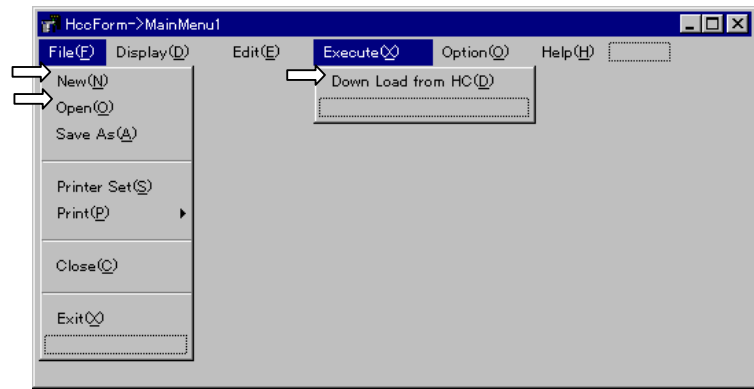
6-1 Size of application program

Size must be in the range which fulfil all of the following items.

- 1) No. of step : No. of Super Block (SPB) is within 64 pcs. including 1 pce. of "BEND"(SPB to be put at the end of SPB array) and max. 3 pcs. of "PAUS"(SPB to show dividing points of processing).
No. of same type SPB in one application software is to be max. 9 pcs.
- 2) No. of switch : Total no. of switches of modules is within 992 pcs.
(No. of switches is No. of Matrix Switch for each module in Super Block Application Manual. In the screen, it is No. of setting item plus 1. For example, "5" in case of BITJ)
Usable residual No. is displayed on [SPB Array].
- 3) No. of output: Total No. of output No. of each module is within 64 pcs.
(output is shown by marks and in the aforesaid manual and screen. Example: "4" in case of PI4A).
Usable residual no. is displayed on [SPB Array].
- 4) No. of RAM : Total no. of RAM of modules is within 32 pcs.
(As to no. of RAM, that for each SPB is shown in the aforesaid manual. Example: "2" in case of PI4A)
Usable residual No. is displayed on [SPB Array].
- 5) Processing time:
In case of no dividing, total of processing time of each SPB is within 200 us.
In case of dividing, total of processing time of each SPB is within 200 us on each group. Up to 4 groups, it is usable.
(Processing time of each SPB is shown in the aforesaid manual and screen).
On [SPB Array], total of processing times at that time is displayed.
Also, since alarm is displayed when total of processing time exceeds 200 us, insert "PAUS" properly.

6-2 Start of editing

Editing can be started by following 3 methods by pull down menu.



1) [File] - [New]

Edit from the state of no set SPB. Data in editing disappear.

Usually, this method is adopted at the times of new design and there is no data to be referred.

Once started, [SPB Array] and [SPB Ref.] are displayed.

2) [File] - [Open]

Open the file and edit existing Matrix Switch data (extension.hcc), or existing input data table (extension.inp).

Data in editing disappear.

This method is used when system is changed or re-open the interrupted work previously.

Once started, [SPB Array] is displayed.

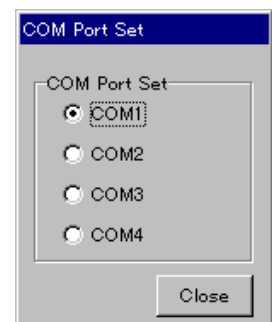
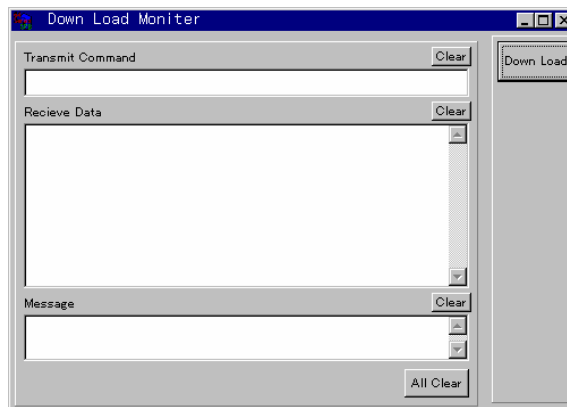
3) [Execut] - [UnLoad from HC]

This method is used to confirm the loaded data in VF64 or to change that data.

Data in editing disappear.

Once started, [SPB Array] is displayed after display of Down Load monitor.

PC and VF64 must have been connected by RS232C cable. Also, COMM number must have been set by [Option] - [Communication Setting].



6-3 [SPB Array] Window

(1) This is the list, which lines up type names of SPB to be used.

After names of SPB type, serial number of each type is attached automatically.

Processing is executed in order of this list.

(2) Check of limit shown in the aforesaid item 6-1, size of application program, is displayed.

1. Always usable residual numbers of switch, output, RAM are displayed in SPB Array window. That numbers are checked when SPB is added or deleted. And when they exceeded usable numbers, alarm is displayed and input is obstructed.

2. Upper limit of number of step is 64 pcs.

3. Processing time is always displayed in SPB Array window. Also, that time is checked when SPB is added. And when it exceeded the limit, alarm is displayed and compiling is obstructed. When alarm is displayed, insert SPB "PAUS" properly.

Making "PAUS" as boundary, inputted SPB is divided into 2 blocks (or 3, 4 blocks) and

processing time also is displayed at each block.

In case that there is no "PAUS", inputted all SPB are processed in one main loop (1 ms / 1 loop) of MPU.

When SPB is divided into 2 (3, 4) blocks, No.1 block is processed in main loop of the first time,

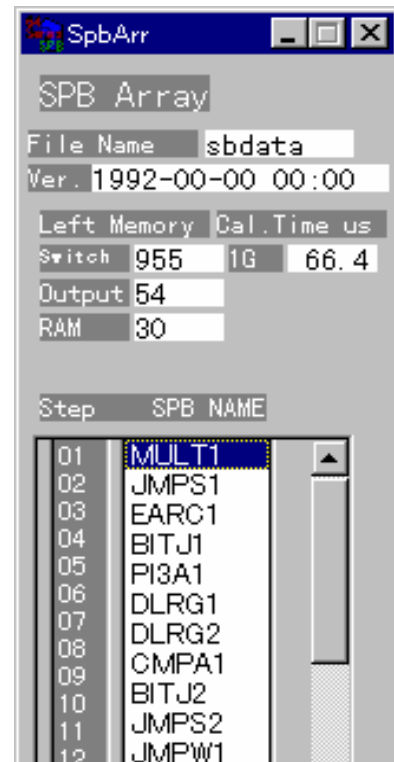
No.2 block in the second time (next, No.3 block, No.4 block) are repeated.

Processing time of each block must be within 200 us.

4. Display Ver. name

Ver. name is displayed by compiled year-month-day-hour-minute.

Ver. name is displayed when compiling was done normally.



(3) Input method of SPB

1. Insert SPB additionally.

1) Display next item 6-4 [SPB.Ref.] window and move cursor to SPB, which is required to add.

2) Move cursor of [SPB Array] to the point where SPB is required to insert newly.

3) By [Edit] - [Insert] of menu, SPB is inserted;

2. Delete SPB, which has already been positioned at [SPB Array].

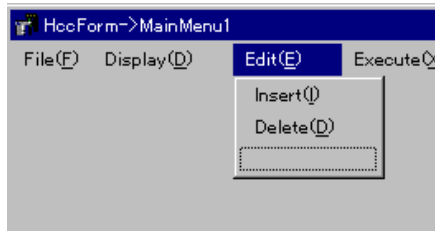
1) Move cursor of [SPB Array] to SPB which is required to delete.

2) By [Edit] - [Delete] of menu, SPB where cursor was positioned is deleted and SPB after that are carried up.

At this time, serial number of SPB, which is same type with deleted SPB and its serial number is larger, is carried down one by one automatically.

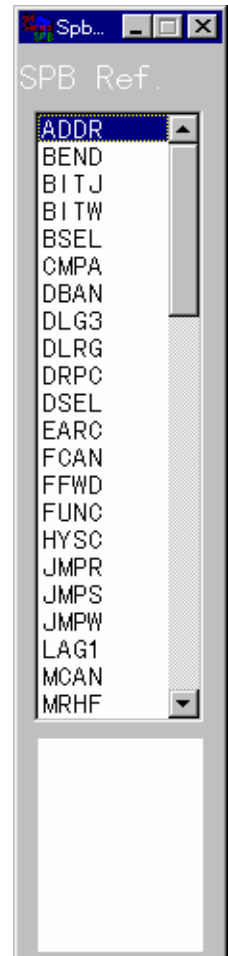
(4) "BEND", which is attached to the last of SPB and shows the last of array, is put on [SPB Array] window from the beginning.

(5) This window can be displayed by [Display] - [SPB Array] of menu.



6-4 [SPB.Ref.] window

- (1) Display the list of SPB which HC function has.
 Details of function of each SPB are written in Application Manual.
- (2) Select necessary SPB by this window, and put it in aforesaid [SPB Array].
- (3) [Spb.Ref.] can be displayed by [Display] - [SPB Reference] of menu.



6-5 [VAR. Ref.] window

Console Settg,
 Sequence Input/Output data
 Input/Output data of Communication

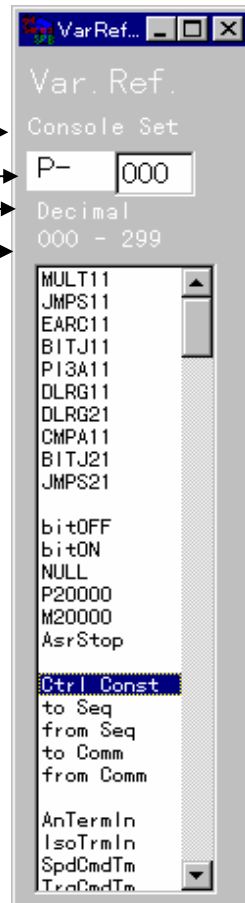
Data No.
 Hex/Decimal
 Setting range

SPB Output name

Bit On/Off,
 Contants of frequent use

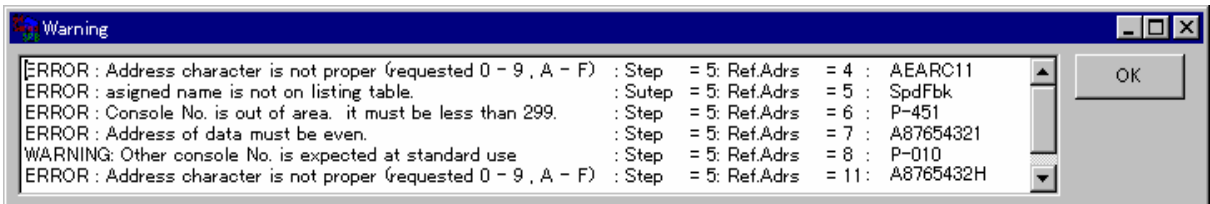
Designation of
 Console setting
 Sequence Input/Output data
 Input/Output data of Communication

Internal Variables in VF64



(3)Check Data

1. In case that same console setting No. is set at plural points, display “Warning” and the relevant positions. This is not error. Confirm that setting has been done as per intended.
2. At the time of address designation (when small column displays "A").
 1. Address designation should have been done in all columns.
 2. Address designation should be done by 8 letters or less of Arabic figures 0 - 9 and A - F and letters should be even number. However, 0 address is not available.
 3. As to bit No. designation only of SPB "BSEL", it should be 0 - 15 of Arabic figures.
3. At the time of label designation (when small column displays "L").
 1. When Variables name designation commences from "P-" (designate console setting).
 - 1-1 The part except "P-" should be figures 1 - 3 digits, within 0 - 259.
 - 1-2 Console setting area, which has suitable conversion coefficient for each control constant, should have been designated. (see Application manual) (In this check, “Warning” only).
 - 1-3 As to SPB "SARC", "PCTQ", console setting area having suitable conversion coefficient for each control constant should have been designated for them and mutual control constant should be in relation designated to Application Manual.
 2. Also in case that Variables name designation commences from "i00", " 00", "tj", "fj", check whether they are in the range of individual data No..
 3. In case that Variables name designation is other than "P-", "i00", " 00", "tj", "fj" (when output of SPB, Constants, Variables of VF64 are designated), Variables must be selected from the label displayed in aforesaid [Var. Ref.].



6-8 Print

1. Input data table

[VF64.SuperBlock.Data] window appears by [File] - [Print] - [Input data list] from menu and input data table is displayed in the window. This is used to check the input data.

Click [Print] on the said window.

2. Matrix switch Data

[VF64.Matrix switch] window appears by [File] - [Print] - [Matrix switch] from menu and matrix switch table is displayed in the window. This is used to check whether compile was done correctly.

Click [Print] on the said window.

```

DataListForm
VF64 Super Block Data
#####
# VF64 Super Block Data #
#####
#### SPB Input Data ####
File Name : B:\workknow\hobssil Printed on 00/11/18 19:06:36

Step : 1 Block TypeMULT1
  Sync/Std B1: L bitOFF      Input1   E1: L IsoTrmln      Input2   E2: L P20000
  Std.Coeff K: L P-0        Sync.Coeff Ks: L P-105
  Out 1   U1 : MULT11

Step : 2 Block TypeJMPS1
  Sel.Input B1: L bitOFF      Polarity B2: L bitON
  Input1   E1: L MULT11      Input2   E2: L bitOFF
  Out 1   U1 : JMPS11

Step : 3 Block TypeEARC1
  Input1   E1: L AnTermln    Acc&Dec Time T: L P-65
  Out 1   U1 : EARC11

Step : 4 Block TypeBITJ1
  
```

Annotations for Matrix Switch Data:

- Numbers of Matrix Switch: points to 00000045
- Numbers of division: points to 00000001
- bitOFF: points to 0000FFFF
- bitON: points to FFFFFFFF
- Constant 20000: points to 4E20FFFF
- Constant -20000: points to B1E0FFFF
- Zero: points to 0000FFFF
- for future: points to 0000FFFF
- first SPB: points to 0000001C
- BEND (last SPB): points to 00000000
- Ver. Name originated in Date: points to 00997229
- Date that Ver. Name means: points to (2000-11-18 19: 8)

```

DataListForm
VF64 SPB Matrix Switch
#####
# VF64 Super Block Data #
#####
#### Matrix Switch Data ####
File Name : B:\workknow\abode Printed on 00/11/18 19:09:04

00000045 00000001 0000FFFF FFFFFFFF 4E20FFFF B1E0FFFF 0000FFFF 0000FFFF
0000001C 0003F008 FFFF902 0003F010 00207000 00207002 00000010 0003F008
0003F00C FFFFA00 0003F008 00000048 FFFF900 00207082 00000004 0003F008
0003F00C 00206181 0003F008 0000002C 0003F008 FFFFA06 0003F008 FFFFA04
FFFF90C 0020705A 0020706E 002071A4 002071CC 002071A6 002071CE 00000014
0003F008 FFFFA02 FFFFA08 00000014 0003F00C FFFFA08 FFFFA08 00000020
FFFA04 0003F008 00207154 00207190 00000004 0003F008 0003F008 FFFFA0E
0003F008 00000010 FFFFA10 0003F008 FFFFA0C FFFFA0A 00000074 FFFFA12
FFFF910 00000074 FFFF90C FFFF914 00000000

Ver. 00997229 (2000-11-18 19: 8)
  
```

6-9 Setting of COM Port No.

Before doing of [Execution] - [Unload from HC], surely confirm coincidence of RS232 Ccommunication port No. of personal computer and Setting.

At rise time of this software, setting is at "COM1". As to COM port No., see from desk top at which COM No. the [Communication port support] is set, by [My computer] - [Control panel] - [System] - [Device manager].

At other time than "COM1", set No. by [Option] - [COM Port Set].

6-10 Display Console Setting Items

Table of items set from console by [Help] - [Console list] from menu is displayed.

By console, conversion coefficient of constant to be set, setting range, application range are known. This window is for reference at input time of control constant to [SPB Setting]. (This table is shown in Application Manual)

6-11 HC output list

From menu, order of output of inputted SPB by [Help] - [HC output list] is displayed.

This is for reference at setting time to display SPB output to trace back. Designate data to be traced back by "No" in the list.

6-12 Close, Exit

1) Close

Close by [File] - [Close] from menu.

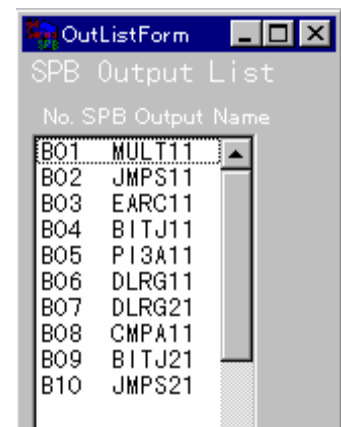
Window in editing is closed and menu only is displayed.

Data not stored disappear.

2) Exit

End of program by [File] - [Close] from menu.

After execution of above item, this is left out from program.



7. Write program into VF64

*** Use flash ROM writing software vf64from.exe.

*** For details, see QG17018.

In order to actuate SPB function of VF64, following operation must be done.

- 1) Load the file to flash ROM on VF64.
- 2) Set console so that SPB function be selected.
- 3) Set control constant of SPB from console.

The order of above operations is as shown below.

1) Load the file to flash ROM on VF64.

(1) Turn OFF the power to VF64 and wait until DC line voltage discharge. (**!!! CAUTION: Otherwise Unit may Breaks. !!!**)

(2) Connect the RS232C of personal computer and CN6-9□12 of VF64 by RS232C cable.

(It is not necessary to disconnect the cable of console)

(3) Execute vf64from.exe.

After that, operate following the message on screen.

1. Set communication port No. (ordinary, "COM1") by pull down menu [Comm Set].

Similarly, select baud rate (usually, 19200bps. If communication error occurs, select lower baud rate).

2. Select "user program" as data writing "mode selection".

3. Input data file name (.mot). (Select from "Reference").

4. Click "Execution".

5. Thereafter, operate following the instruction on screen.

1) Set SW3 of VFC64 at "OFF" and SW4 at "ON" and turn ON the power to VF64.

2) Under-mentioned actions are executed automatically.

1. Read-in control program to memory of PC.

2. Transfer the read control program to CPU of VFC64.

3. Read-in the Matrix Switch Data to memory of PC.

4. Transfer the read Matrix Switch Data to Flush Rom of VFC64.

5. After transfer completed, end-message appears.

3) Turn OFF the power to VF64 and wait until DC line voltage discharge. (**!!! CAUTION: Otherwise Unit may Breaks. !!!**) , and then set SW3, SW4 of VFC64 at "OFF", and turn ON the power to VF64.

6. When [Exit] is clicked, window closes.

2) Set console so that SPB function be selected.

b-00: Selection of super block function (On)

b-01: Selection of control mode

In accordance with these settings, torque command (TrqCmdSb) or speed command (SpCmdSb) must have been set in application program.

3) Set control constant of SPB from console.

Set constants to console data as control constants of each super block in application program.

