PCI Express Bus NCB Series

HPCIe-NCB674N
HPCIe-NCB674N(1)

xDA data editing software manual

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1. Please read first

1.1 Extent of Warranty

1. The product warranty is valid for a period of three years from the date of purchase. If a defect is acknowledged by Hivertec within the period of warranty, Hivertec will repair or replace the product upon return of the product to Hivertec.
2. Hivertec is not responsible beyond the purchase price of the product for any damages or loss of profit, direct, indirect, or secondary, caused by application, delivery, or failure of a Hivertec product either within or outside of the period of warranty.

1.2 Limitations to Liability

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1.3 Important Safety Instructions

Thank you for choosing this product. This manual contains information that is important for the safe and reliable operation of this product. Read this section and understand the information contained before attempting to use the product.
Furthermore, save this manual and store it in an easily accessible location near the installed product, so that it can be referenced when necessary.

Safety Precautions
Always read this manual and any attached documents completely before attempting to use this product. Be sure that you understand the information provided and are using the product correctly. Do not use the product before having a complete understanding of the product, product safety information, and precautions. In this manual, safety precautions are classified as either Warnings or Cautions.

⚠ **Warning**	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
⚠ **Caution**	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury, or property damage.

1.3.1 Authorized For

⚠ **Caution**
⚠ This product and this manual are designed for those with the following knowledge. • A basic knowledge for installing and wiring expansion boards. • A basic knowledge of electronic control devices and personal computers, Windows.

1.3.2 Program Adjustment Made by Users

⚠ **Warning**
⚠ Always debug the program thoroughly before using this product to drive devices. Any error in the program may result in unexpected operation leading to death and/or serious injury.

2. Introduction

This manual provides operating explanation of the software that is for operation an intelligent 4-axis motion board HPCIe-NCB674 suitable for PCI Express1.0a (x1) or for MDB operation (that is to be performed by loading the pre-4000 lines of data to the board) of HPCIe-NCB674N (1) or for editing the data of CDA operation (that is to load and run one after the other the following operating data for each 2000 lines completed).

Hereafter, HPCIe-NCB674 or HPCIe-NCB674N (1) is described as the “NCB”.

For the details of MDA data and CAD data, please refer to the “HPCIe-NCB674N(1) User's Manual <Software>”

Hereafter, MDA data and CAD data are described as “**xDA data**”.

2.1 Program type

No.	Software name	Execution file name	Function
1	Intermediate file creation software	ND2xDA.exe	It outputs an intermediate file that is to be converted the source file
2	xDA data editing software	xDAedit.exe	

2.2 Operating environment

Windows8, Windows7+.NET Framework4.0, Windows XP SP3+.NET Framework4.0

2.3 Data file type

Data files are written in the format of text file.

No.	Name	Contents	Extension	Notes
1	Source file	the original data from 1 to 1,000,000 lines	.csv	Created in the editor such as Excel. Read and converted and output an intermediate file in ND2xDA.
2	Intermediate file	Intermediate data from 3 to 1,000,000 lines	.tmptxt	Output file of ND2xDA Read, edit, and save are possible in xDAedit
3	Execution file	Execution data from 3 to 1,000,000 lines	.txt	Specified at a time of saving in xDAedit. Executed by the MDA in the case of less than 4000 lines Executed by the CDA in the case of 4001 or more lines and inserted TOB data in every 2000 lines.

2.4 Intermediate file creation software

Converts the source files (extension .csv) (configured by the text described the amount of interpolation movement of the X ~ U-axis and its velocities) into an intermediate file.

2.5 Functions of xDA data editing software

Features of the software are as follows.

- automatically generating the header and footer rows.
- editing the PCL command write data.
- editing the PCL register write data (multiple lines).
- editing the general-purpose output control data.
- editing the general-purpose input-ready data.
- verifying the contents of the data that has been edited.
- specifying the scope and number of repetitions in case the data is repeating the same content.
- inserting the data into any row.
- deleting the data of any row.
- reading and editing an intermediate file.
- saving the edited data as an intermediate file.
- converting the intermediate file to execution file and saving it.

2.6 Execution file creation procedure example

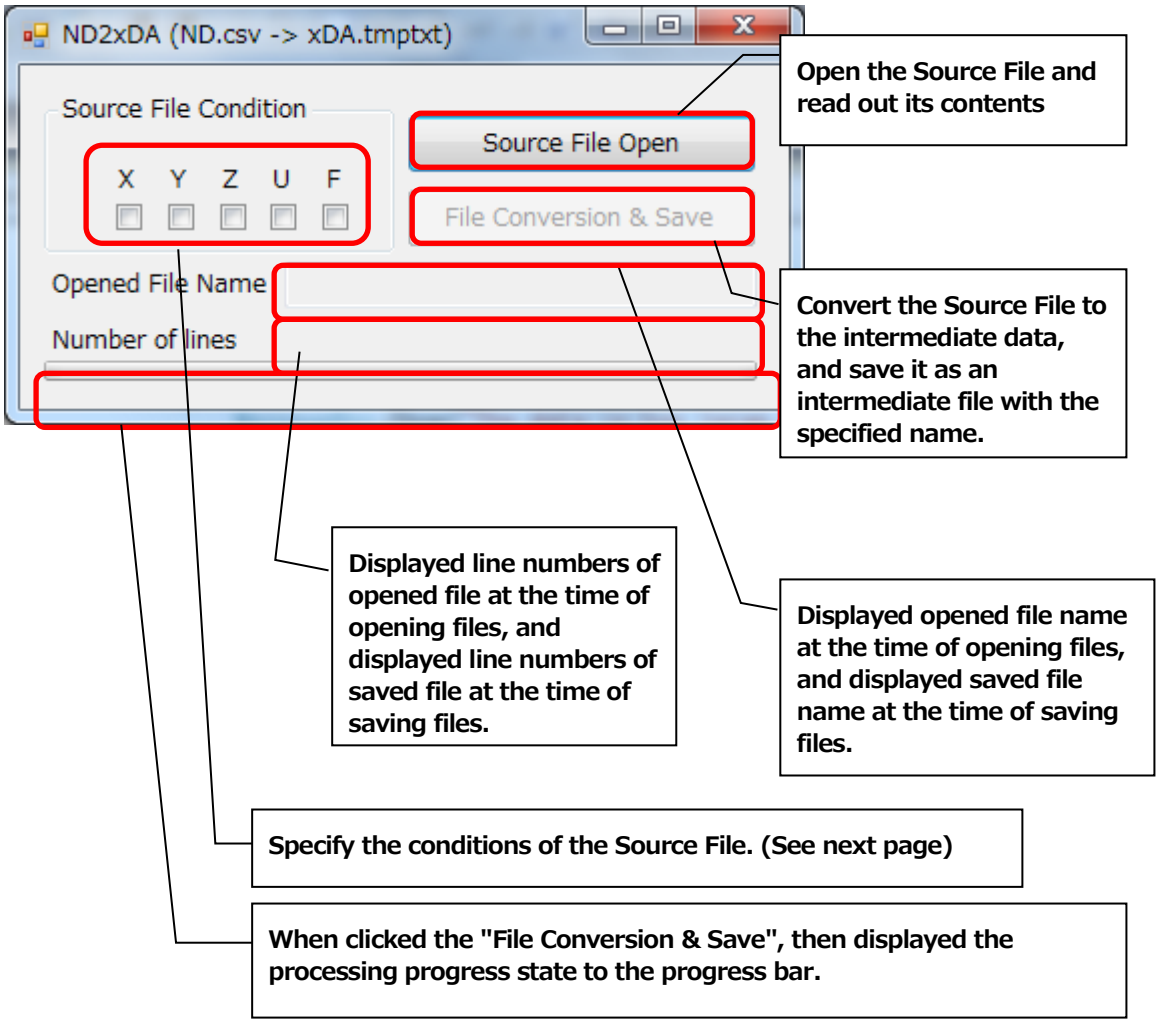
1. Creating a source file in Excel, etc..
2. In the intermediate file creation software, converting a source file into an intermediate file.
3. Adding or editing the data in the intermediate file using xDA data editing software, if necessary.
4. saving an intermediate file that was edited in xDA data editing software as an execution file.

3. Operations of intermediate file creation software

To convert the source files into an intermediate file..

3.1 startup screen

The following screen is displayed when you start an intermediate file creation software "ND2xDA.exe".



3.2 Conditions of Source File and file format

Specify the axis and its velocity. File extension is to be ".csv".

Example 1. If the X, Y, Z are checked, description of the Source File will be as follows:.

travel distance of X, travel distance of Y, travel distance of Z +CR+LF

Travel distance is a decimal number of text data with a plus or minus sign.

For example, in the case that travel distance of first movement of linear interpolation of each axes are "1000", "-5000", "100", and that the second movement are "2000", "-4000", "70", the description will be as follows.

1000, -5000, 100 (Line break)

2000, -4000, 70 (Line break)

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.

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Example 2. If the Y, Z, F are checked, description of the Source File will be as follows:.

travel distance of Y, travel distance of Z, operation speed +CR+LF

Travel distance is a decimal number of text data with a plus or minus sign.

Operating speed is to be corresponding register of value (1 to 65535), and the command speed [pps] is to be multipled result of the register value (of operation speed) and speed magnification. (See also the item "2.2.5 Speed and acceleration" of "CPD Board Series User's Manual <Operation>")

For example, in the case that travel distance of first movement of linear interpolation of each axes are ”100”, “-50” and register value (of operation speed) is ”10000”, and that the second movement are ”300”, “-100” and register value (of operation speed) is ”12000”, the description will be as follows.

100, -50, 10000

300, -100, 12000 (Line break)

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3.3 Intermediate data

In execution data (4001 or more rows of data) for CDA, it contains the TOB in every 2000 lines, but it is not included in the intermediate data.

In addition, the sequence number has also been added with a few lines incrementally.

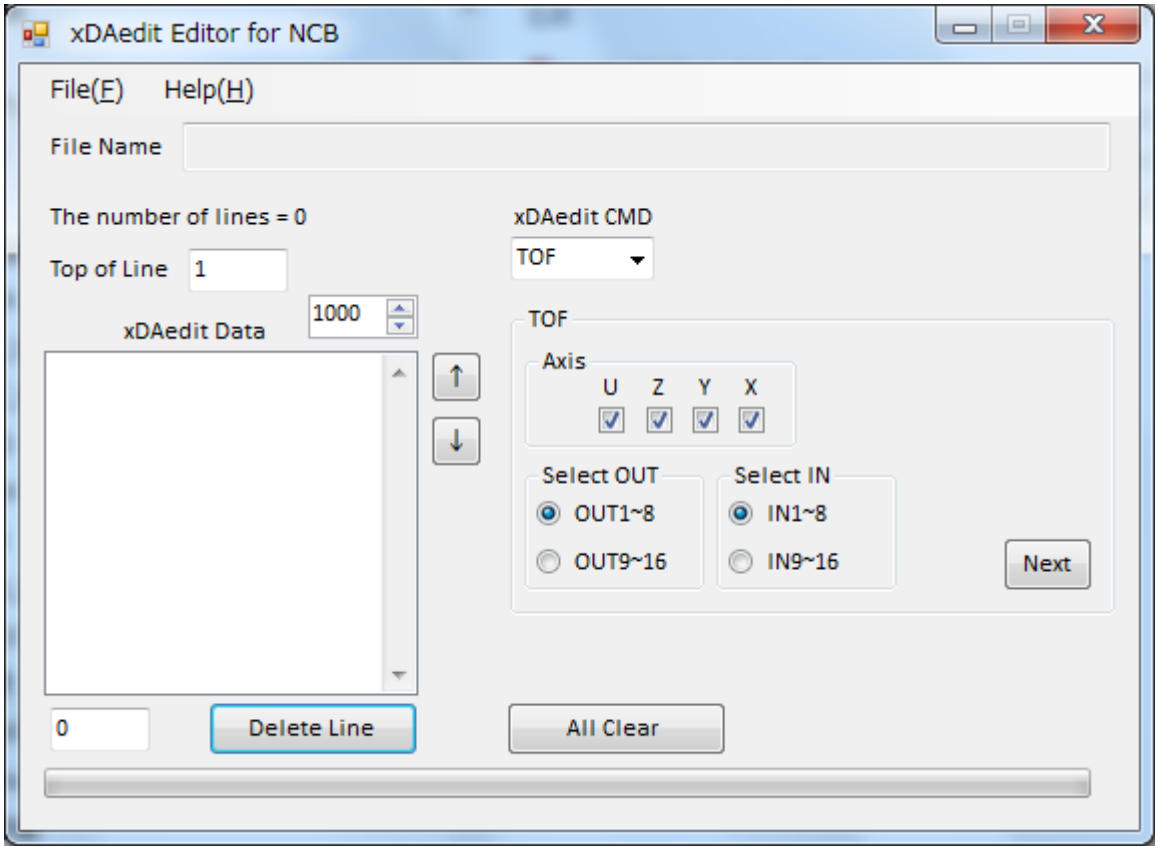
When converting this intermediate data into execution data, use the "xDAedit.exe" that is the xDA data editing software.

4. Operations of xDA data editing software

Editing the intermediate data, and saving the edited data as the intermediate data or execution data file. (Up to 1,000,000 rows)

4.1 startup screen

When starting "xDAedit.exe" that is xDA data editing software, the following screen will be displayed.



4.2 Execution data format

SEQ_NO is to be decimal string, other data are to be hexadecimal string. Each line is to be always 4 sets of data.

The first line is always to be the Beginning initialization block (header). The last line is always to be the final block (footer).

The format is as follows.

SEQ_NO, DATA1, DATA2, DATA3 +CR+LF

For more details of DATA1, DATA2, and DATA3, please see the item “5.6 Contents of DATA1(CND/CMD)” and “5.7 Details of MDA Operation Block” of the “HPCIe-NCB674N(1) User's Manual <Software>”

.

<Example>

1,0700,0B49,0003

2,0300,8061,0800

3,0400,8061,0800

4,0000,0387,0000

.

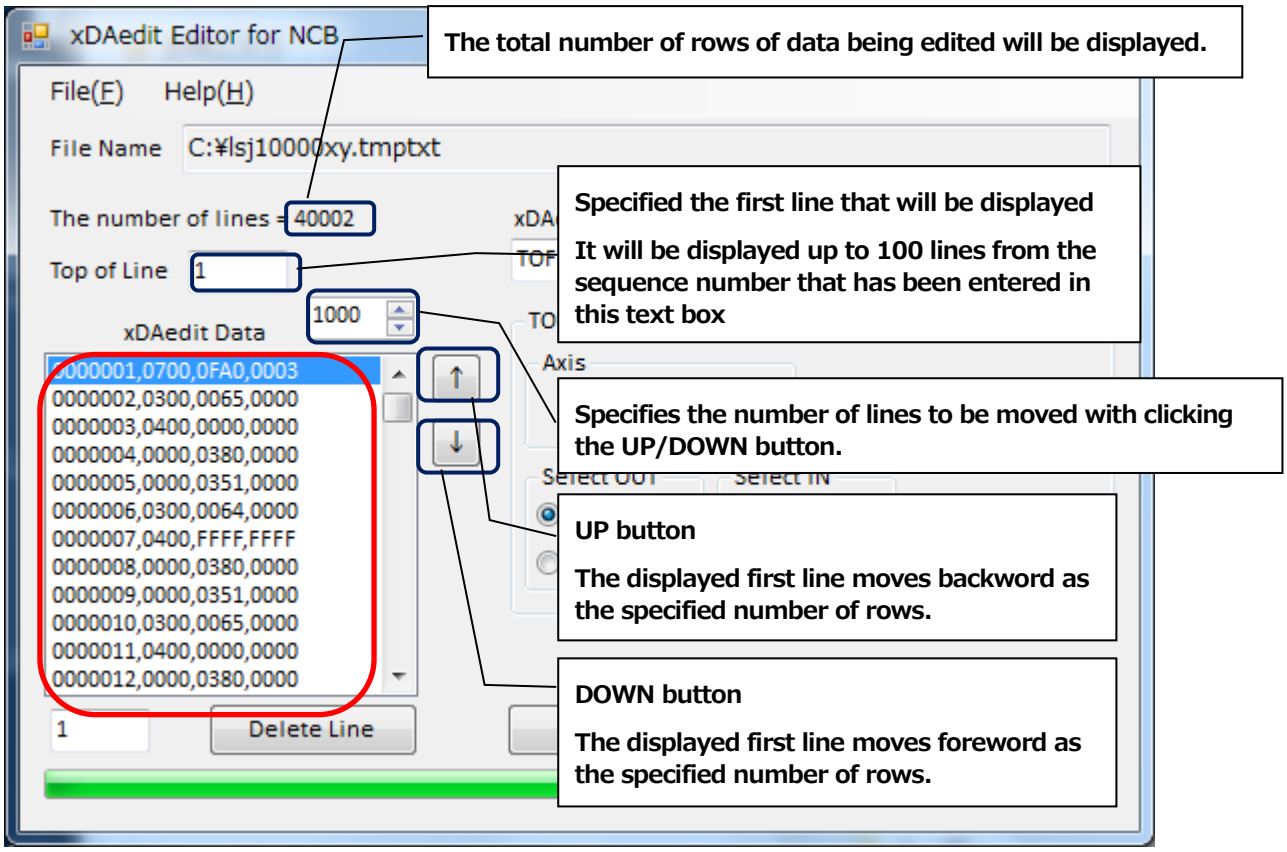
.

2889,0813,0000,0000

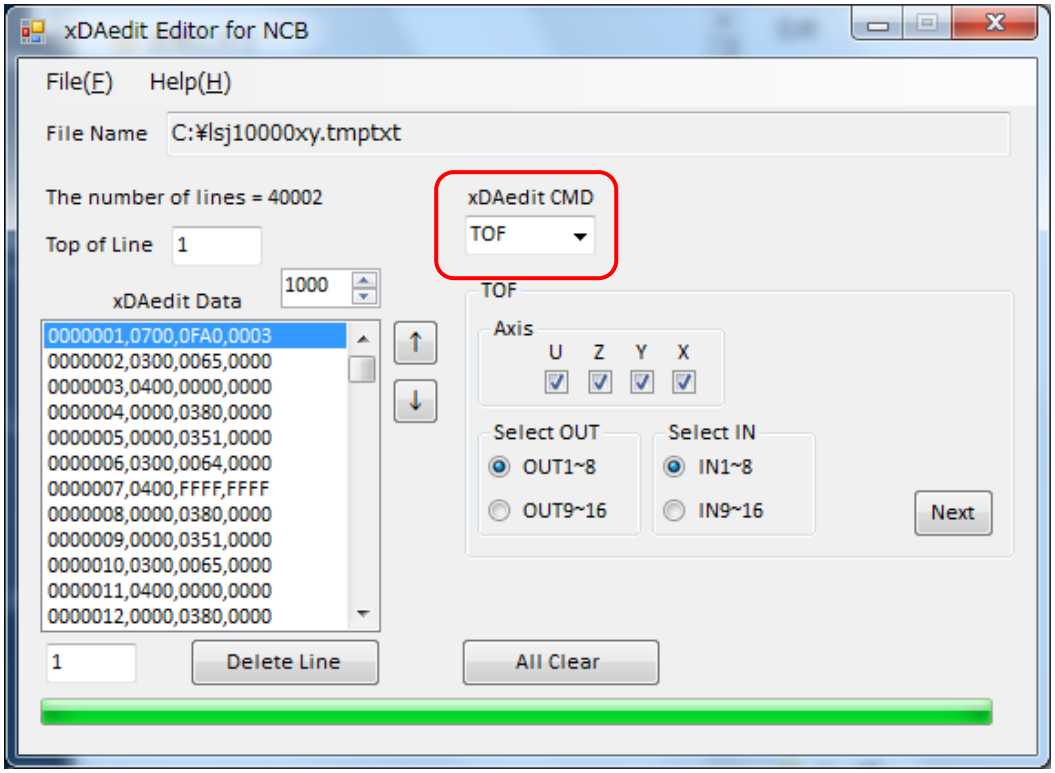
The "xDAedit.exe" that is xDA data editing software is a tool to create the execution data described above example.

4.3 Confirming intermediate data

Intermediate data during editing will be displayed in the **red frame** of the following figure.



4.4 Switching each editing screen



Each edit screen can be switched to with the combo box within the **red frame**.

Select the "**PCL CMD**" when editing PCL command write data.

Select the "**WR_REG**" when editing PCL register write data.

Select the "**OUT**" when editing general-purpose output control data.

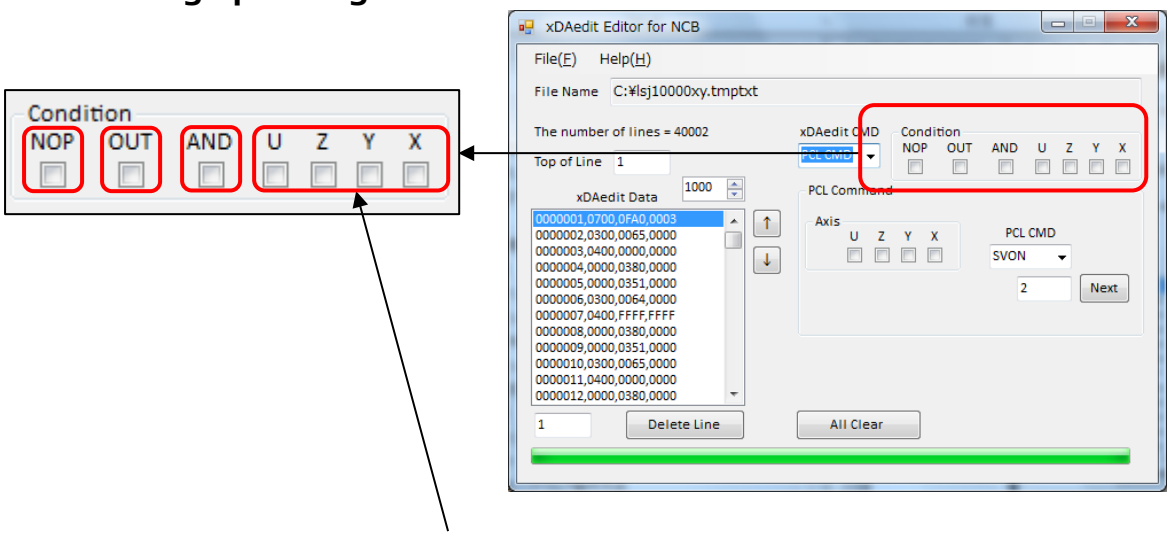
Select the "**WAIT_IN**" when editing general-purpose input ready data.

Select the "**Multiple**" when editing repeated data.

Select the "**TOF**" when editing TOF data.

Select the "**EOF**" when editing EOF data.

4.5 Editing operating condition



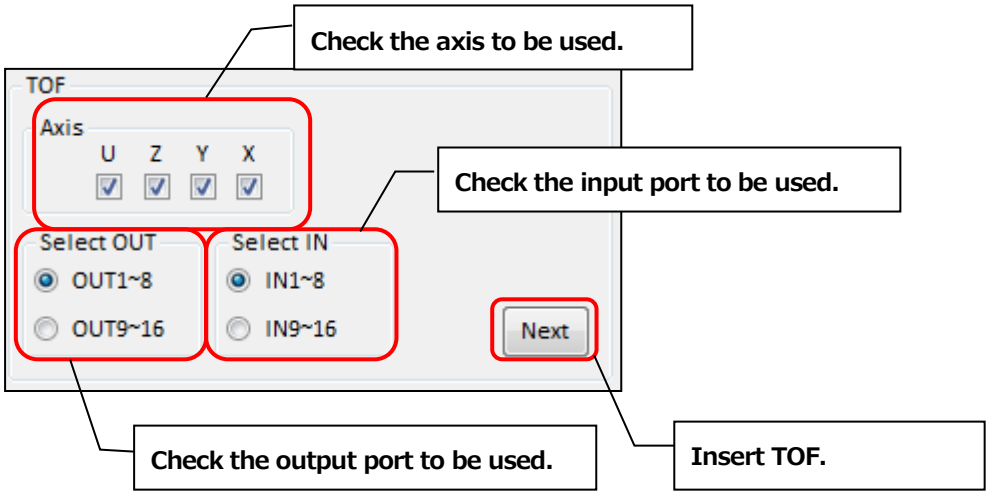
Sets the operating condition of the operating block. When checked, each axes will be waiting for the completion.

When checked the "**AND**", it will be AND conditions. When removed check, it will be the OR condition.

When checked the "**OUT**", axes will be waiting and operation will start after the completion of previous operation output pulse.

When checked the "**NOP**", operation will start regardless of the previous operation.

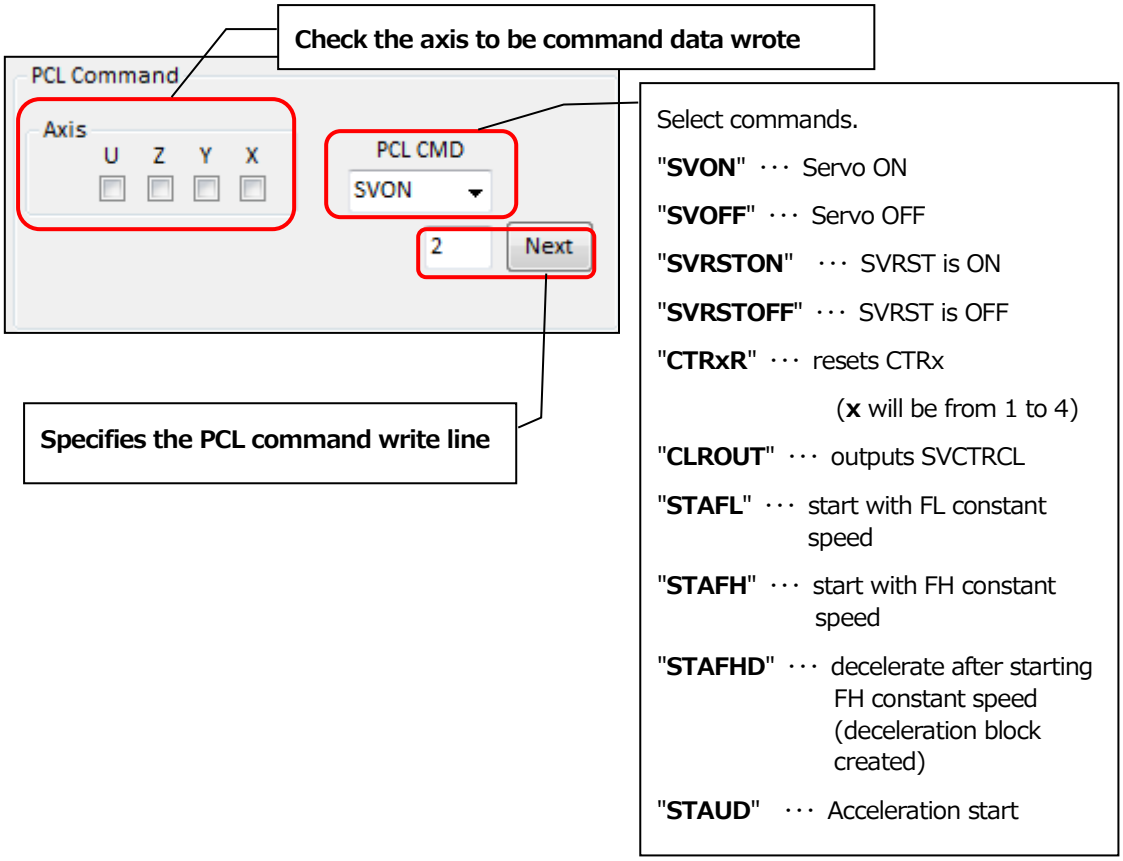
4.6 Editing TOF data



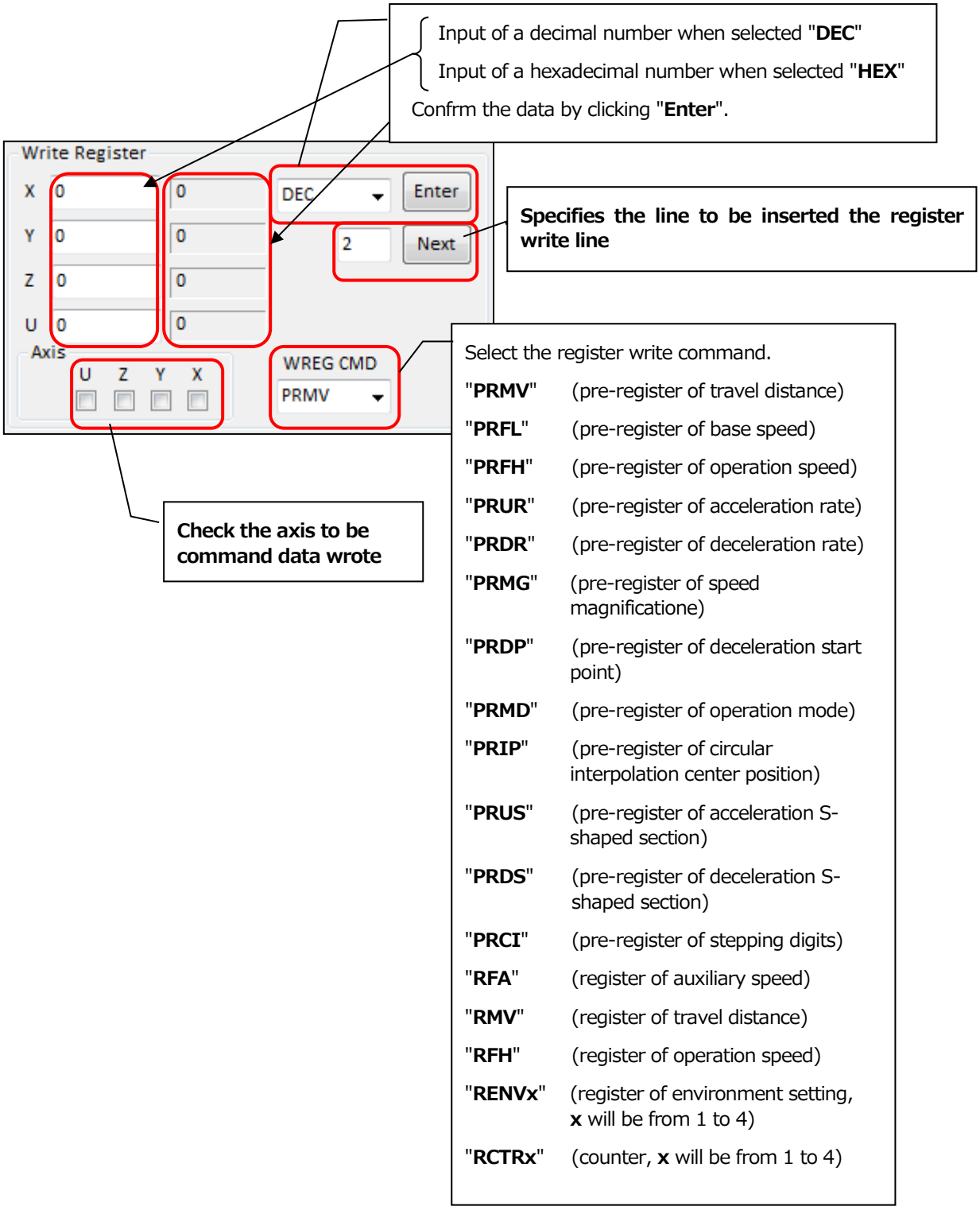
If the TOF is already existed in the data, perform this operation after deleting the existing TOF.

The number of data lines will be created automatically calculated at the time of EOF inserted.

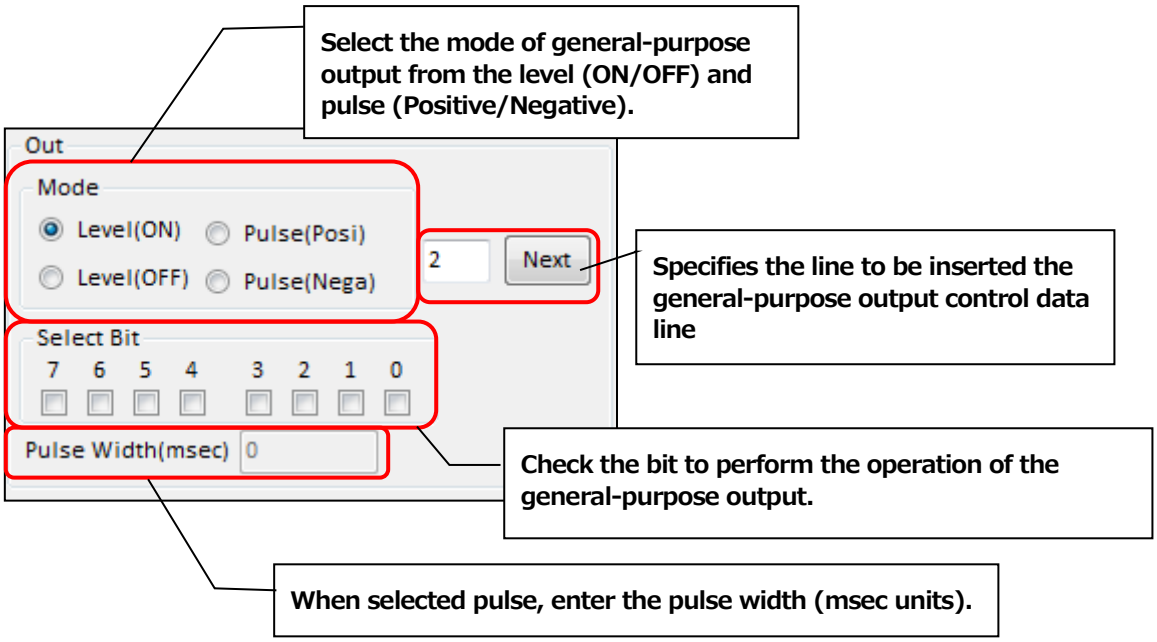
4.7 Editing PCL command write data



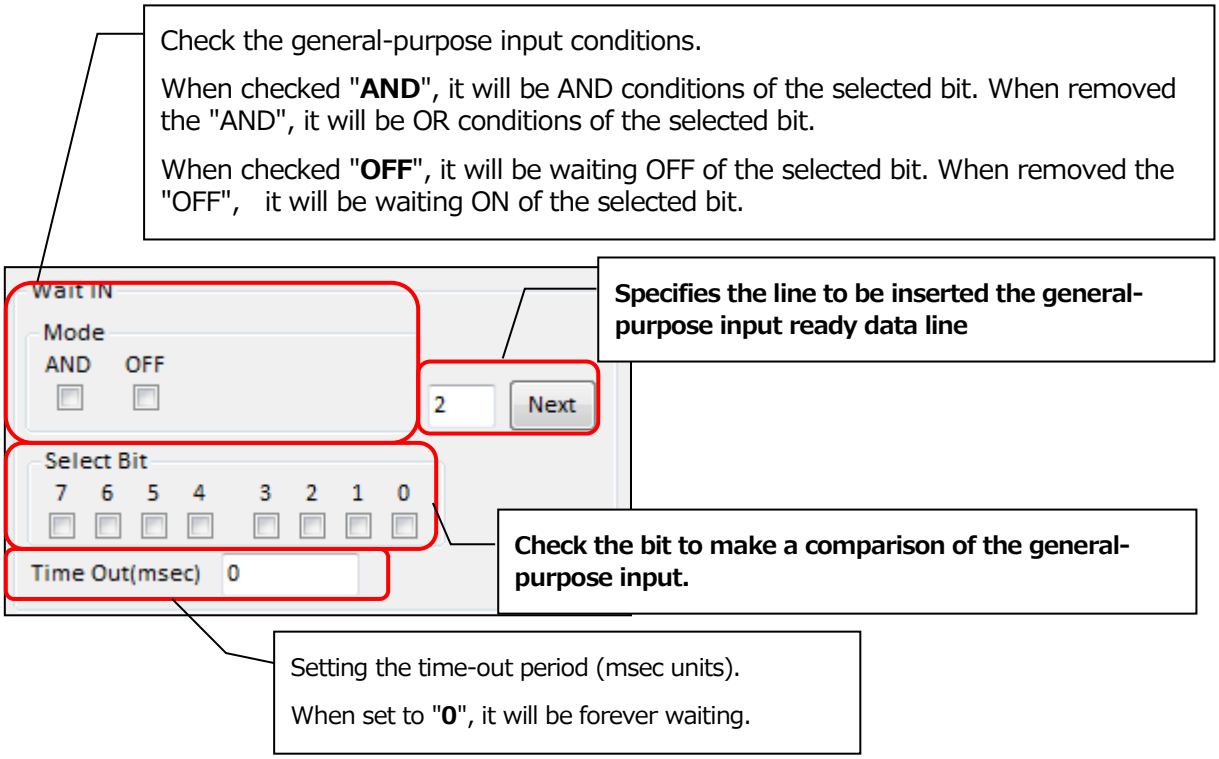
4.8 Editing PCL register write data



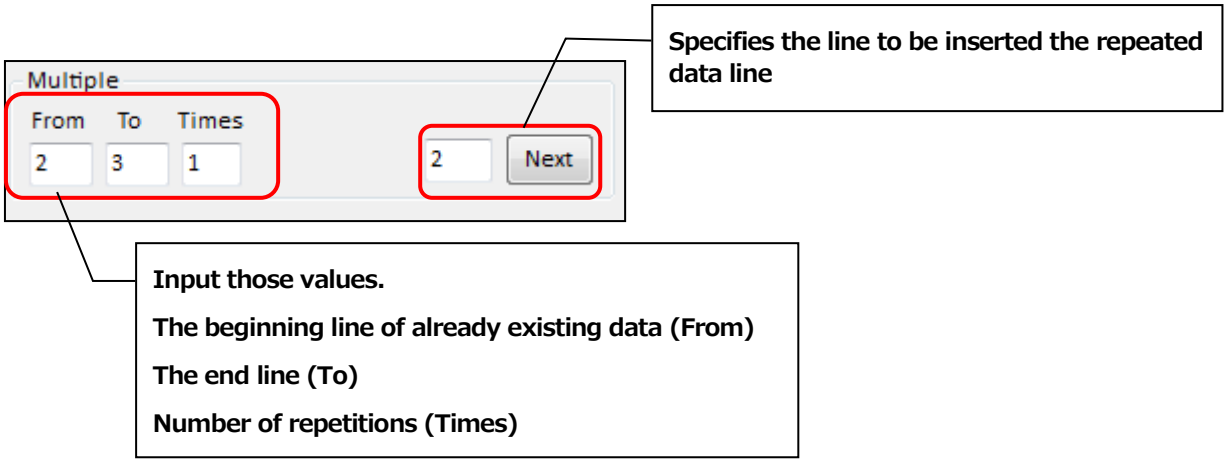
4.9 Editing general-purpose output control data



4.10 Editing general-purpose input ready data

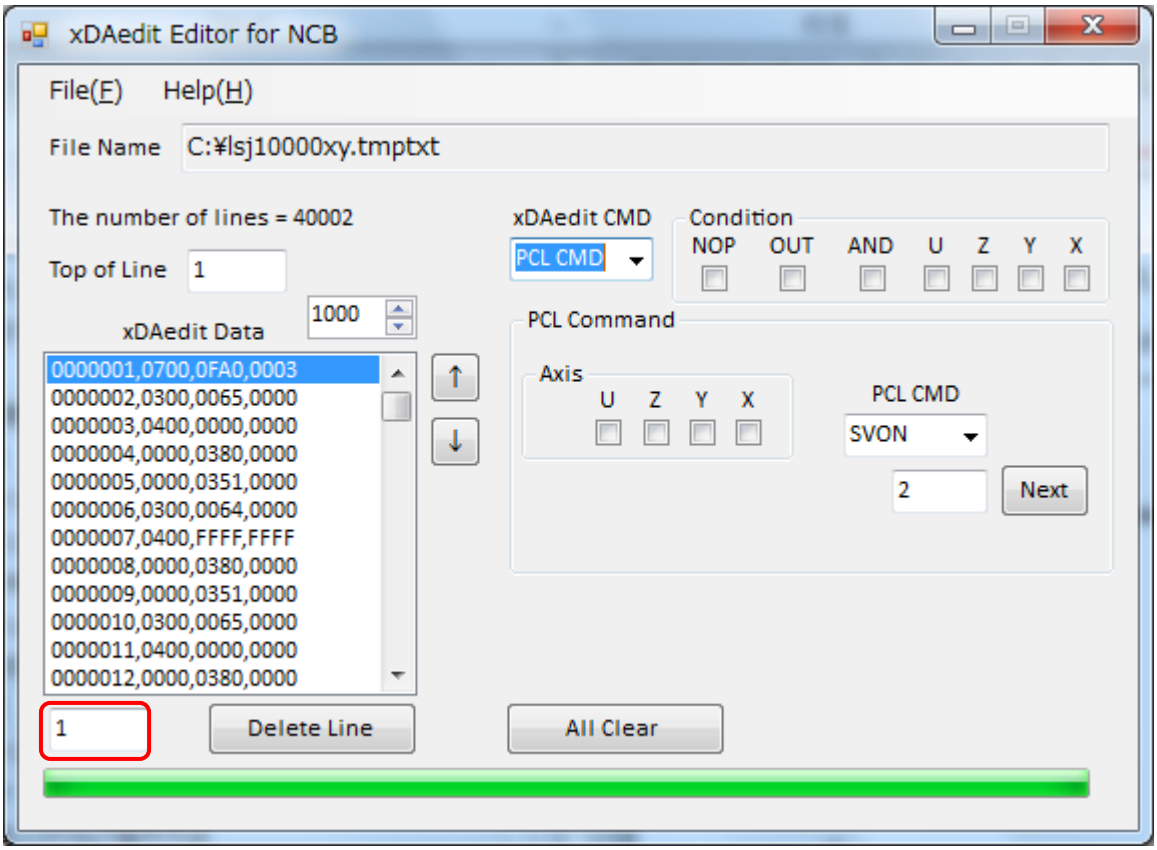


4.11 Editing repeated data



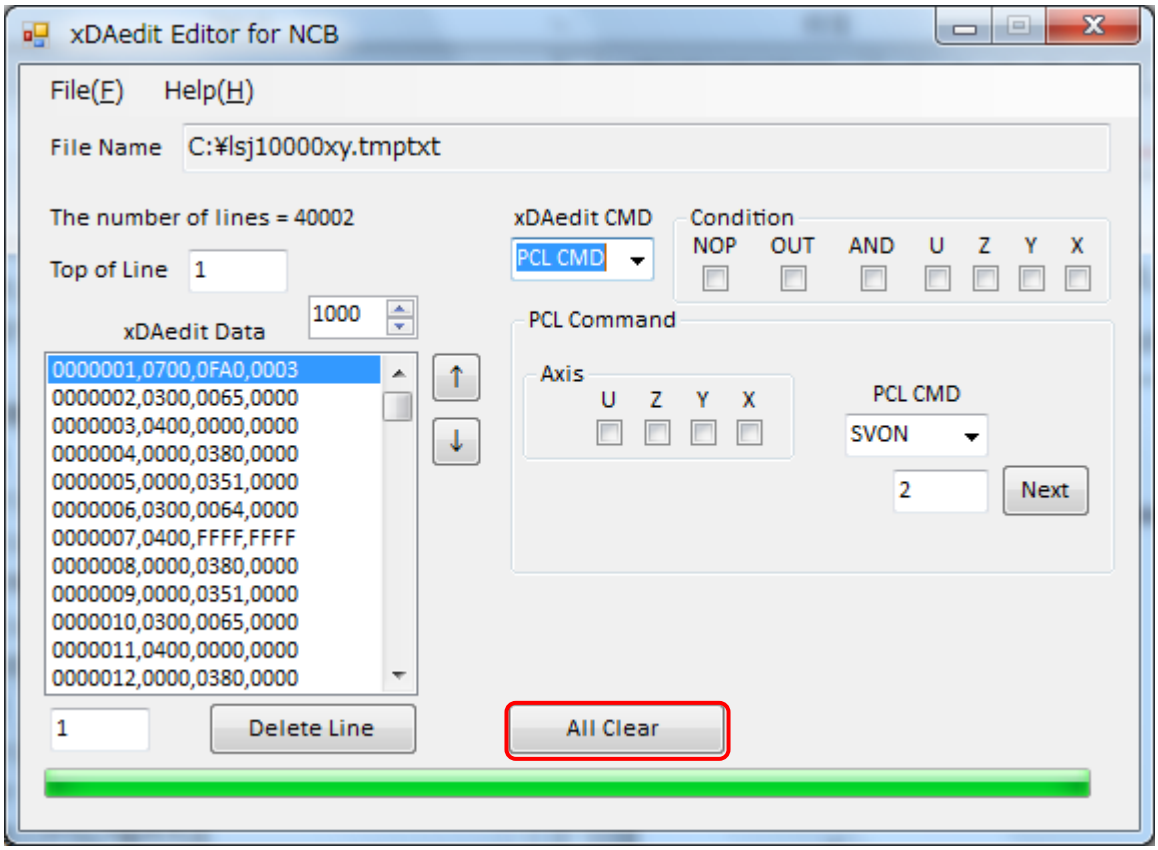
4.12 Deleting the specified line

The line was specified in the **red frame** can be deleted by clicking "**Delete Line**".



4.13 Deleting all lines

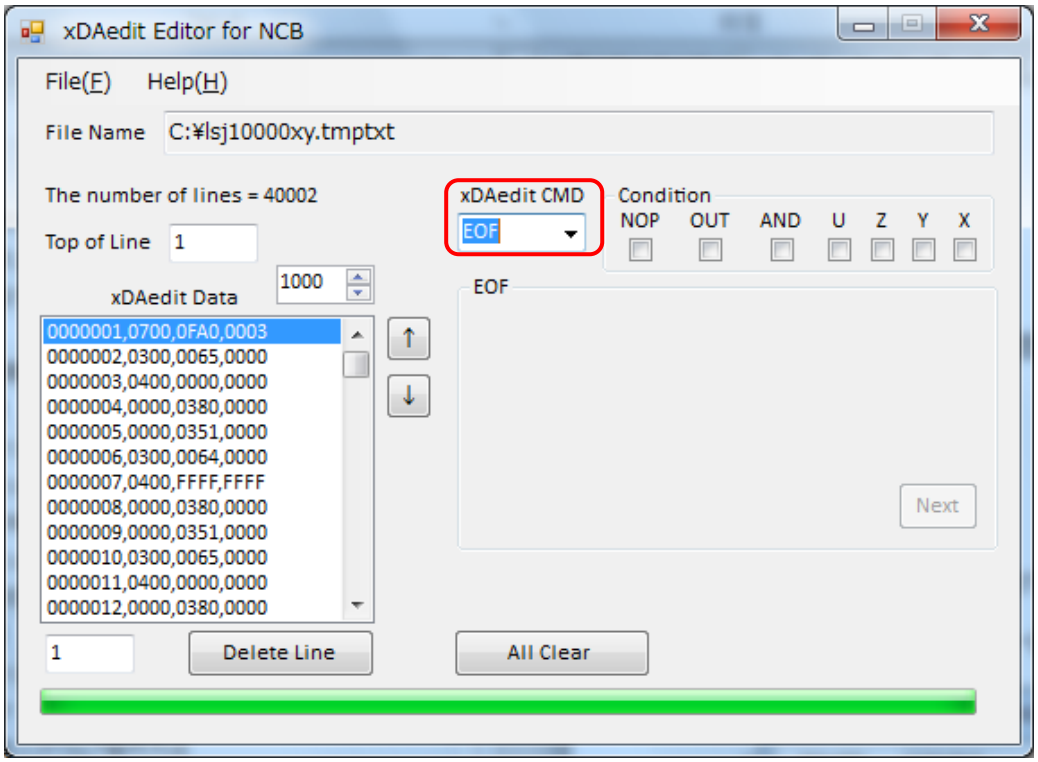
All line can be deleted by clicking "**All Clear**".



4.14 Creating EOF

Select the "**EOF**" of the combo box within the **red frame**, select the program completion conditions, to create the EOF data.

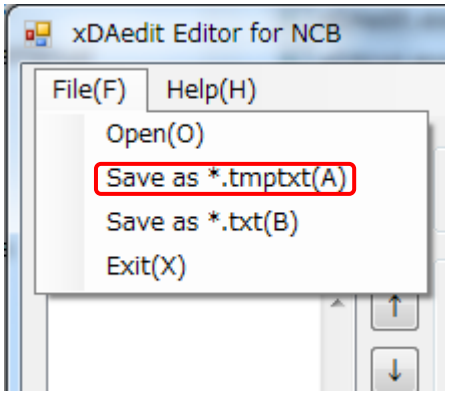
If the EOF is already existed in the data, perform this operation after deleting the existing EOF.



4.15 Saving the intermediate data

By clicking "**File**" and "**Save as * .tmptxt**" in the sequent order, the file save dialog is displayed.

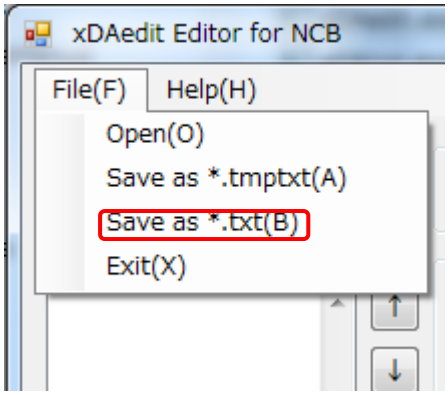
With the specified name, the edited data can be saved as an intermediate file.
(extension is .tmptxt)



4.16 Conversion and saving as execution data

By clicking "**File**" and " **Save as *.txt** " in the sequent order, the file save dialog is displayed.

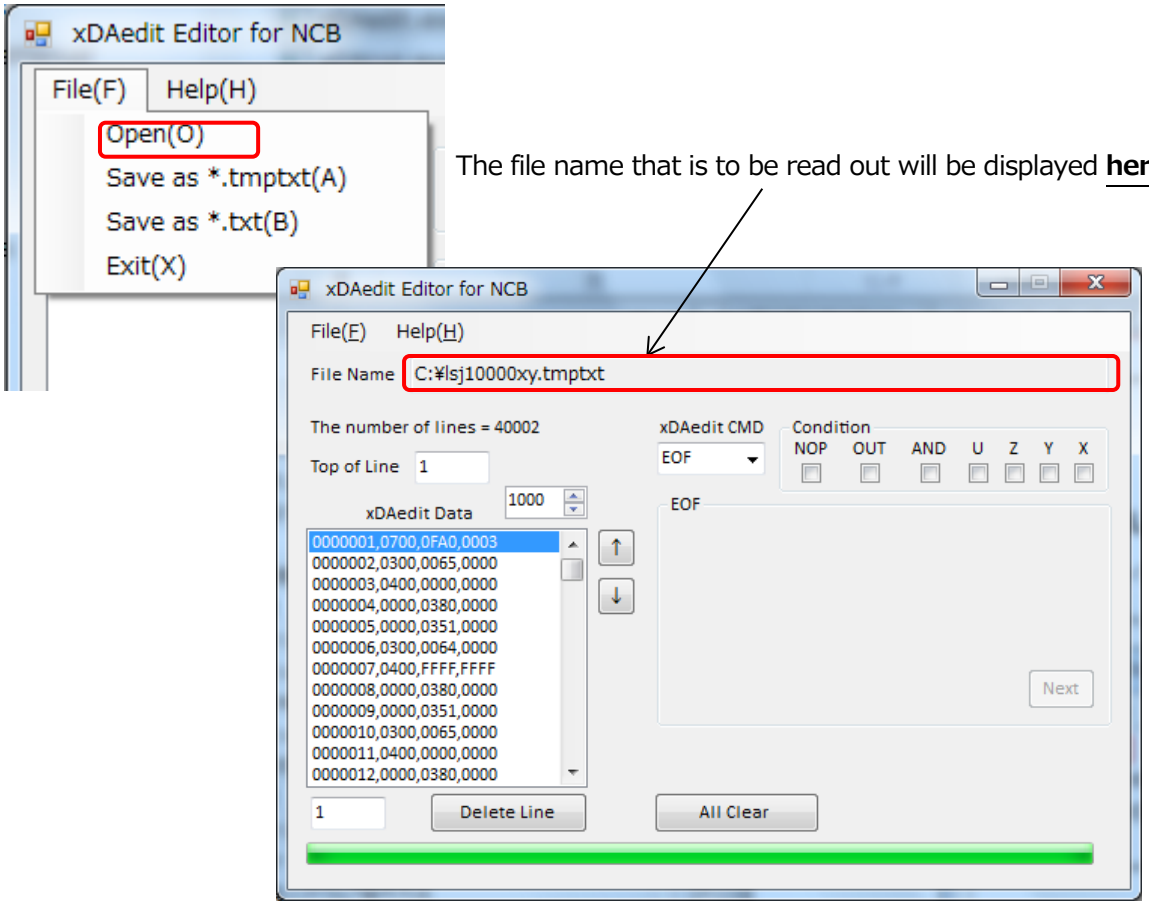
With the specified name, the edited data is converted to execution data, and saved. (extension is .txt)



4.17 Reading data

By clicking "**File**" and " **Open** " in the sequent order, the file open dialog is displayed.

The intermediate file (extension is .tmptxt) of the specified name can be read and edited.



4.18 When adding and editing the intermediate file output by "ND2xDA"

An intermediate file can be editing in the procedure of "4.17 Reading data".

In the case that TOF is subject to change, remove the TOF, and next, edit the TOF.

Then, adding the execution initial data appropriately. Finally, remove the EOF and perform the procedure described inthe "4.14 Creating EOF".

5. Confirmation of the execution data that was edited in xDA data

MDA/CDA execution data verification software "**xDArun**" is provided as a confirmation tool of execution data.

"XDArun" can be confirmed the execution data actually on board.

For the operation of "xDArun", please see the “MDA/CDA execution data verification software xDArun Operation Manual”.