Programmer's Manual

MPI Prober Driver <Rev A.01.4.1>

Document Release History

Page.	Rev.	Revision Date	Item
7,8	V1.4.1	15/01/2021	Add the page for new EasyEXPERT setting
	V1.4.0	24/09/2020	New document

Table of Contact

1. Introduction

1.1. Objective

This document describes the MPI Prober Driver executable files used with the RepeatMeasurement function of the B1500 EasyEXPERT software. You can use the RepeatMeasurement function of the EasyEXPERT software to control probers and measure wafers.

1.2. Repeat Measurement Procedures

With the EasyEXPERT Repeat Measurement function, you can execute the following executable files at the time of the following four events.

Procedure	Event and description	Name of executable file for Suss prober control
Start	Execute once at the start of RepeatMeasurement.	Start_mpi_Vx.x.exe
Subsite	Move to the next Subsite after the measurement is complete.	Subsite_mpi_Vx.x.exe
Iterator	Move to next die after all subsite measurements are complete.	Iterator_mpi_Vx.x.exe
Final	Execute once at the end of RepeatMeasurement.	Final_mpi_Vx.x.exe

Vx.x means the version of file. e.g. Subsite_mpi _V1.4.

1.3. Function Overview

1.3.1. Start procedure

The following operations are performed during the Start Procedure.

ID input

Wafer information input

Wafer load and alignment standby

Move FirstChip

Acquire chip position information

Acuire subsite number

Raise stage

1.3.2. Subsite procedure

The following operations are performed during the Subsite Procedure.

Wafer information read in

Lower stage (separation)

Move to Subsite (Only travel in one die)

Acquire chip coordinates

Acquire subsite number

Raise stage (Contact)

1.3.3. Iterator procedure

The following operations are performed during the Iterator Procedure.

Wafer information read in

Lower stage (separation)

Move to next DUT

(if map have subsite, system will move next subsite and stepping to next die)

Acquire chip position information

Acquire subsite number

Raise stage (Contact)

1.3.4. Final procedure

The following operations are performed during the Final Procedure.

Lower stage (separation)

1.4. Compatible Probers

All MPI Prober system

2. Operation

2.1. Arguments setting

If no arguments are specified, a value is acquired from the ini file described on the following pages.

The GPIB resource that can be setting in the file "*.ini" that place the same folder with exe files.

GPIB0:13:INSTR => using the GPIB0 and address is 13.

```
[Prober]
Address=GPIB0::13::INSTR
LogMode=False
LogName=c:\prober.log

[Target]
UseID=True
SubsiteInfo=False
WaferInfo=False
```

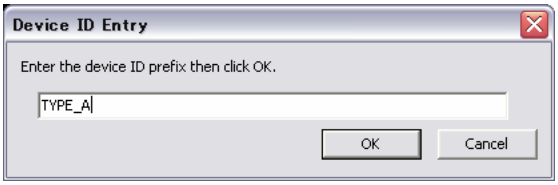
Section	Key	Description
Prober	Address	GPIB address
	LogMode	This is used to determine whether to output a GPIB log. True: output, False: do not output
	LogName	Name of log file output when LogMode=True. Note for Windows Vista users: When LogMode=True, modify LogName path specification to any folder which you have a write permission. Windows prohibits to put any file under the root folder of C: drive.
Target	UseID	This is used to determine whether to use the input value for the value set as the DeviceID in EasyEXPERT. If this is set to True, the input dialog box appears during the Start Procedure, and the input value and die position are returned to EasyEXPERT as the DeviceID. If this is set to False, only the die position is returned.
	SubsiteInfo	This is used to determine whether or not subsite information is output to the output result.

		True: output, False: do not output
	WaferInfo	This is used to determine whether or not wafer information is output to the output result. True: output, False: do not output

2.2. User Interface Operation

2.2.1. Start Procedure

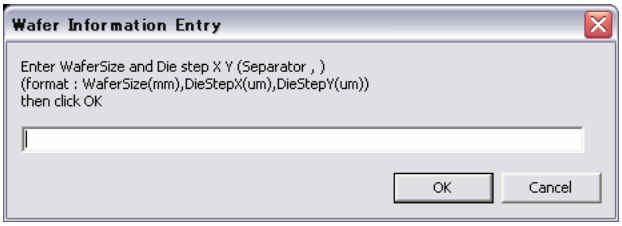
(a) ID input: If the UseID in the prober_info.ini file is set to True, the ID input dialog box appears.



The following value input here appears in DeviceID on the EasyEXPERT screen.

ID : Die position

(b) Wafer information input: The wafer information entry dialog is displayed if WaferInfo is set to True in the Prober_info.ini file.

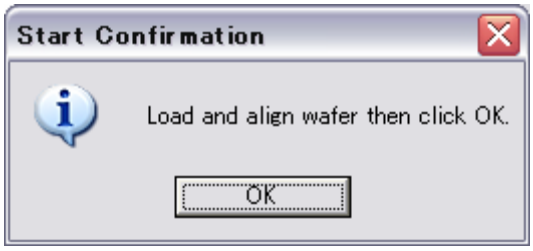


The following value input here appears on the EasyEXPERT screen.

WaferSize : The wafer size

DieSize : The die step value (X, Y)

(c) Load alignment standby: Configure the probe plan load and the wafer load and alignment, and then click OK to continue.



2.2.2. Iterator Procedure

There is no user interface operation when executing the Iterator Procedure.

2.2.3. Subsite Procedure

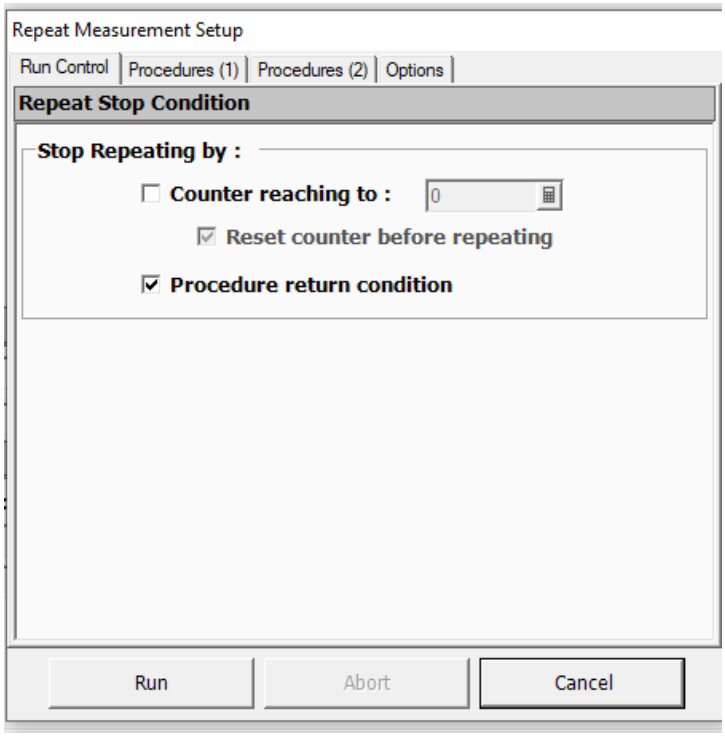
There is no user interface operation when executing the Subsite Procedure.

2.2.4. Final Procedure

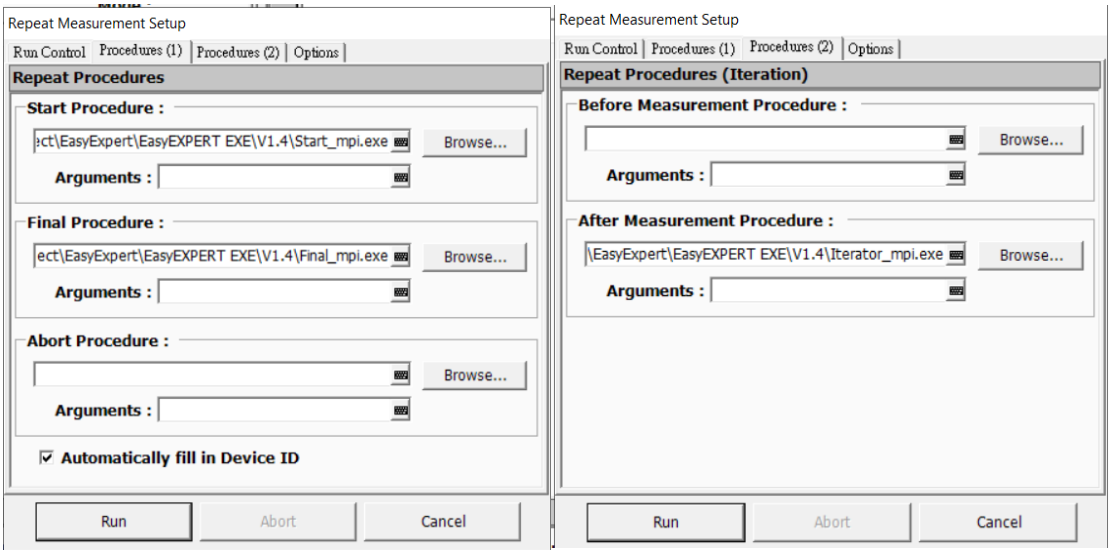
There is no user interface operation when executing the Final Procedure.

2.2.5 Counter of stepping

User can setting the stepping counter for measurement or “Disable counter” for traveling base on Wafer Map.



Please load “Start Procedure” and “Final Procedure” in “Procedures (1)” page. The “Iterator Procedure” and “Subsite Procedure” execute file can be loaded in “Procedures (2)” page as below.

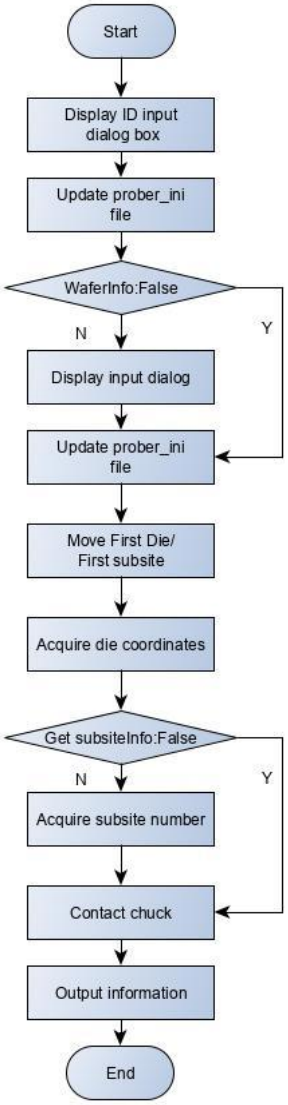


3. Program Description

3.1. Main Flow

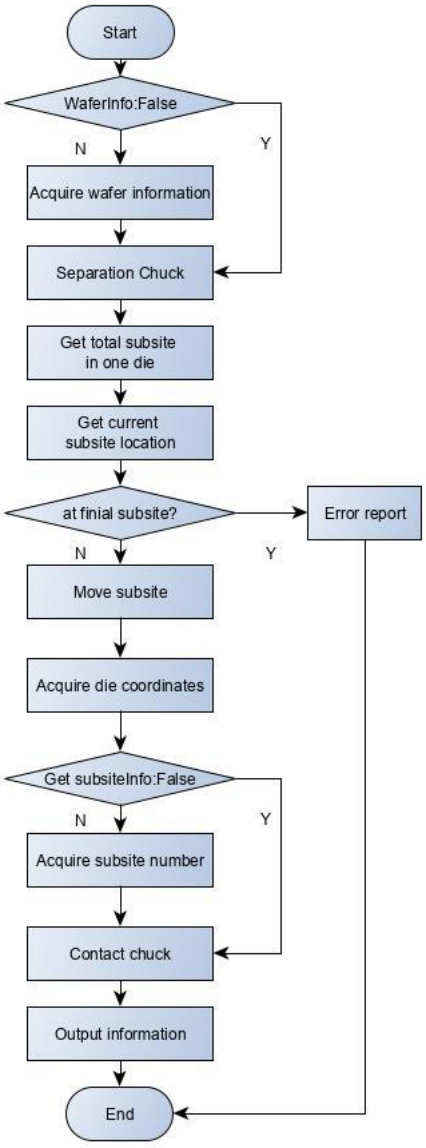
3.1.1. Start_mpi.exe

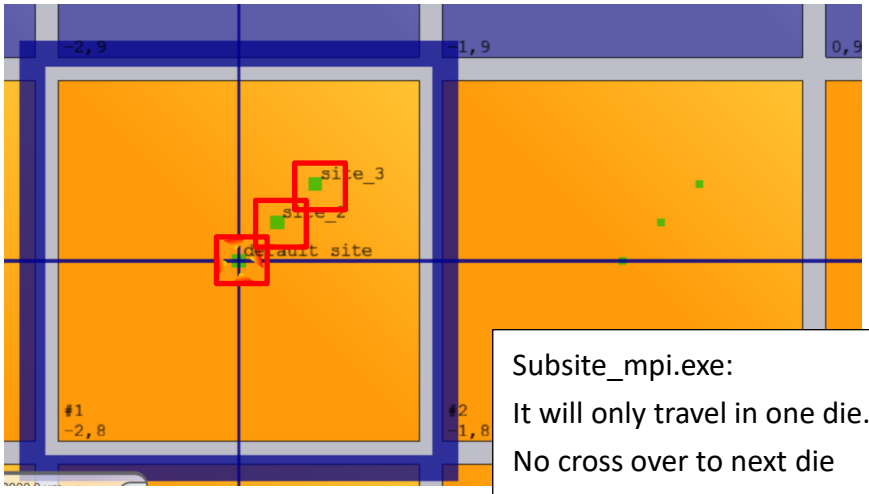
The following flow of operations is performed during the Start Procedure.


Start
Display ID input dialog box
Update prober_ini file
WaferInfo:False
N
Y
Display input dialog
Update prober_ini file
Move First Die/ First subsite
Acquire die coordinates
Get subsiteInfo:False
N
Y
Acquire subsite number
Contact chuck
Output information
End

3.1.2. Subsite_mpi.exe

The following flow of operations is performed during the Subsite Procedure.





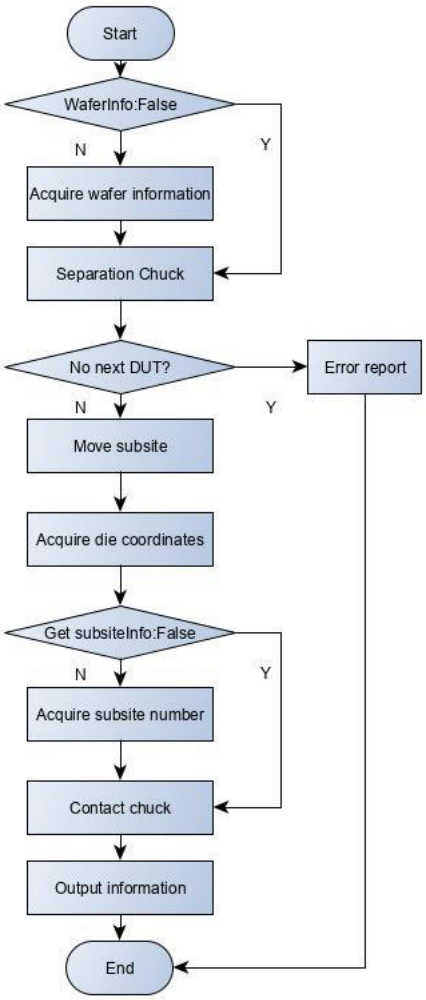
Subsite_mpi.exe:

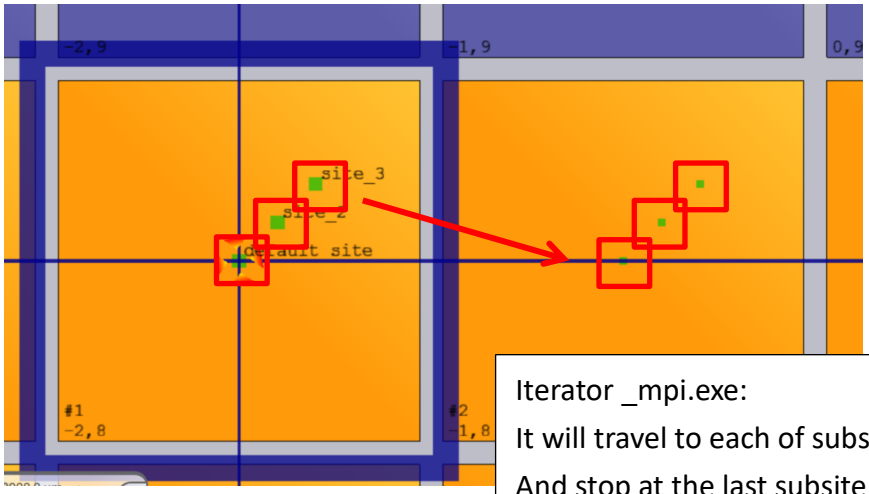
It will only travel in one die.

No cross over to next die

3.1.3. Iterator_mpi.exe

The following flow of operations is performed during the Iterator Procedure.





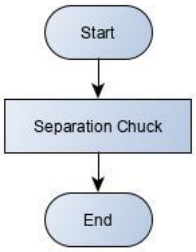
Iterator _mpi.exe:

It will travel to each of subsite in every die.

And stop at the last subsite of wafer

3.1.4. Final_mpi.exe

The following flow of operations is performed during the Final Procedure.



4. Prober Command

3.2.1. Command list

Item		Command
System	MPI command set	*RCS 1
Move XY	Move to FirstDie	map:step_first_die
	Move to next subsite	map:subsite:step_next
Move Z	Move Z down	move_chuck_separation
	Move Z up	move_chuck_contact
Acquire information	Request current die position	map:die:get_current_index
	Request total subsite number	map:subsite:get_num
	Request current subsite index	map:die:get_current_subsite

5. Build information

The prober driver binaries are compiled with the following environment:

Operating System: Microsoft Windows 7 or above

Building platform: Microsoft Visual Studio 2005 (C++)

GPIB Libraries: NI GPIB V14.0 or above