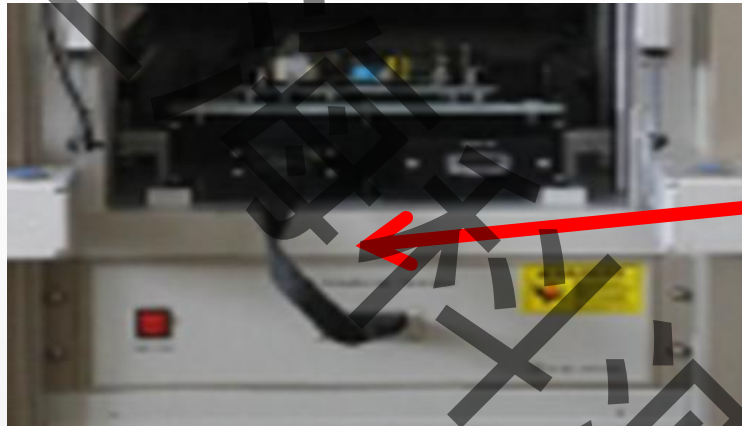


What is a different about novaflash? (20 Differences)

novaflash Asia Branch

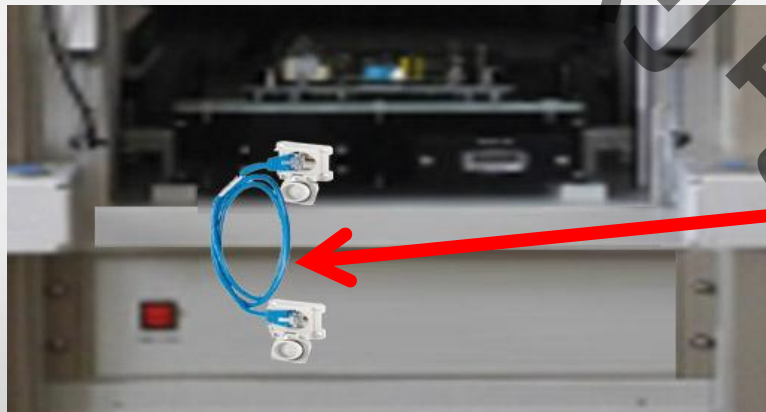
1, Fasted Prog. speed thru short Length Cable

- **Competitators**



Signal line
(Critical Signal Lines)

- **novaflash**



novalink
(1Gps, LAN Cable,
Not, ISP Line)

1, Fasted Prog. speed thru short Length Cable

- **Competitators**



Min. 1M ~ Over
(ISP Lines)



- **novaflash**



*Under
30cm*

2, Easy to Use

- **Competitors**

- Image file + Project file **(Need two files, MUST)**
 - Image File: *.FRB, *.WNI
 - Project File: *.FRS, *.WNP
- **Can easily readable this project file.**
- **Type of File: Text Format (No Confidential)**

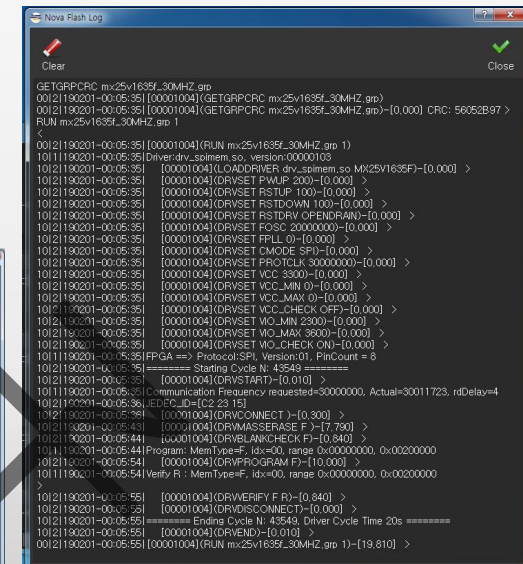
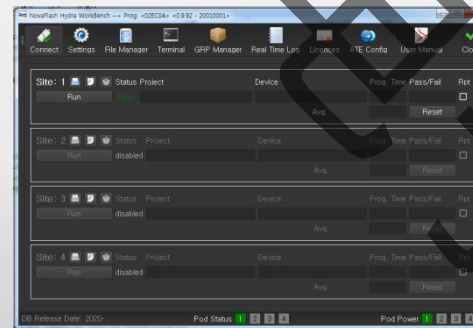
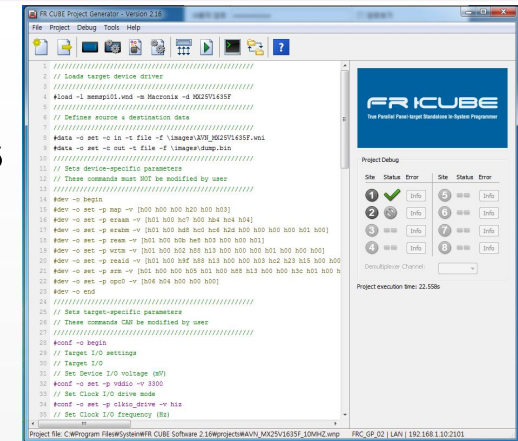
- **Novaflash**

- **GRP File (Only ONE File)**
 - Image + Project File (Mixed)
- **No Text of File Format. (Can't Read, Keep Confidential)**

3, Provide the Real Time Log Function

- **Competitators**
 - Can't know the current programming status
 - **Only can be know the Pass or Fail info.**

- **Novaflash**
 - **Provide the Real time Log information**



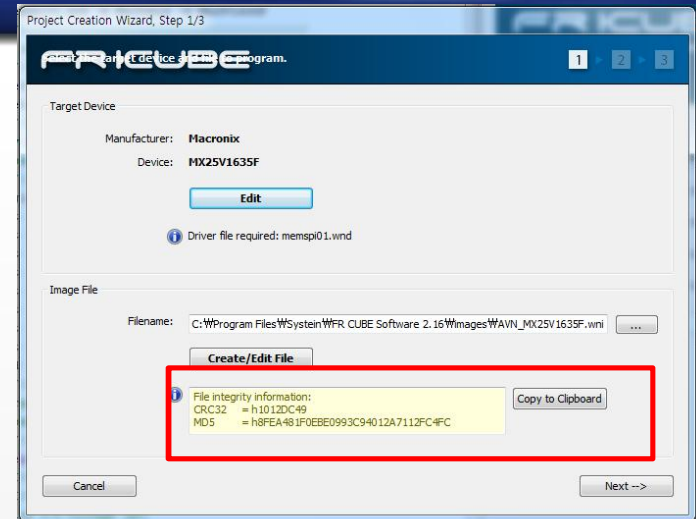
4, Provide the various CRC Information

- **Competitators**

- Provide only Project CRC values

- **Novaflash**

- GRP file and original Data File CRC value (Two offers)
- Data File and Source Inspection can be verified



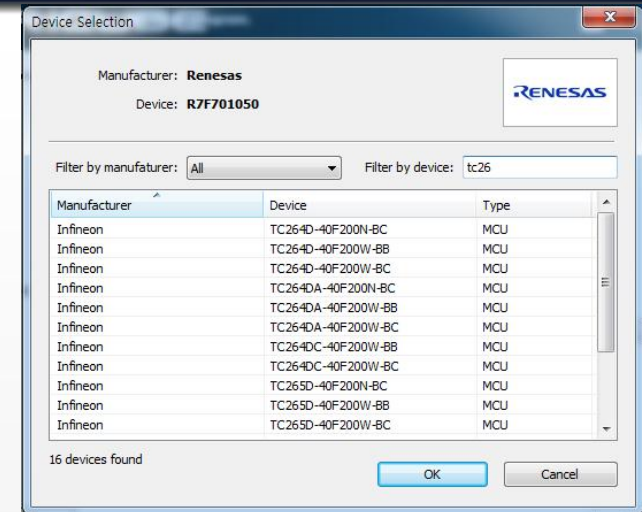
```
Terminal
GETGRPCRC mx25v1635f_30MHZ.grp
<
CRC: 56052B97>
```

```
Terminal
GETDATACRC mx25v1635f_30MHZ.grp
<
Source Address | Data CRC | Src CRC | filename
0x00000000_00000000 | 0xD1894C0F | 0xD1894C0F | (null)
>
```

5, Cost Save (License Purchase)

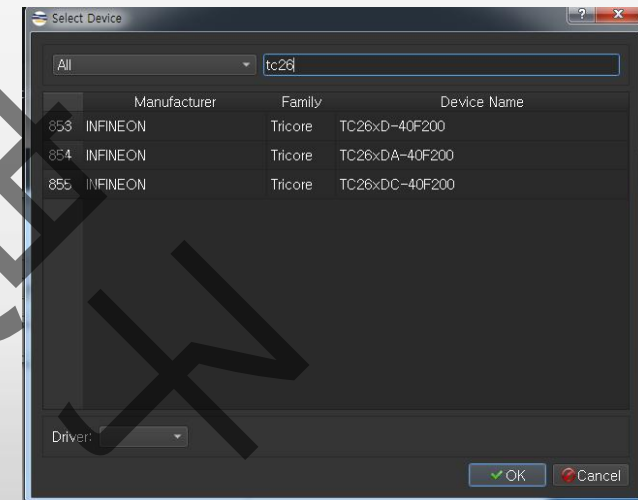
- **Competitators**

- **License purchase required** according to the internal Flash size of MICOM.



- **Novafash**

- **No separate license purchases**,
Depending on the size of the Flash
inside MICOM



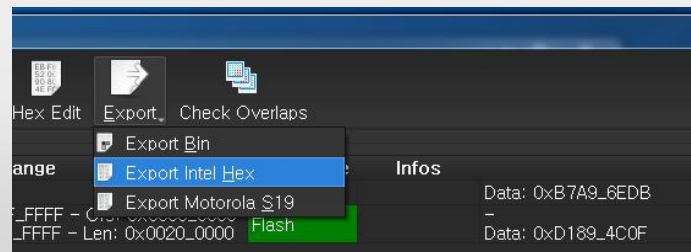
6, Real Dump Function

- **Competitators**

- After ISP operation, it is **difficult to verify** the results.

- **Novaflash**

- Provides the **same Dump type of file** as the existing Data File format

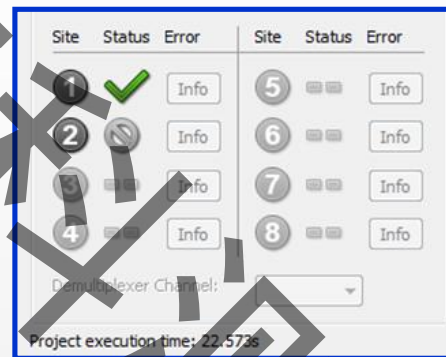


7, Powerful Hardware Performance

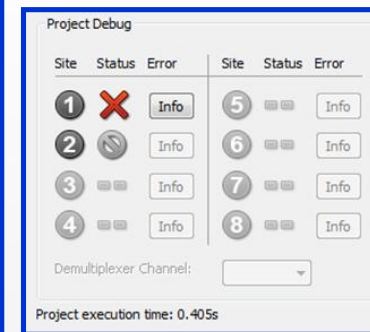
- **Competitors**

- TCK: Max. 20Mhz ~ 30Mhz

Example: mx25v1635F



20Mhz



30Mhz

- **Novaflash**

- TCK: MAX 50Mhz

```
>  
10|2|190201-00:07:01| [00001004](DRWERIFY F R)-[0,510] >  
10|2|190201-00:07:01| [00001004](DRVDISCONNECT)-[0,000] >  
10|2|190201-00:07:01|===== Ending Cycle N: 43684, Driver Cycle Time 19s =====  
10|2|190201-00:07:01| [00001004](DRVEND)-[0,010] >  
00|2|190201-00:07:01|[00001004](RUN mx25v1635f_50MHZ.grp 1)-[18,780] >
```

8, Project File Error Diagnostics Function

- **Competitators**

- **None**

- (Programmer error check not possible)

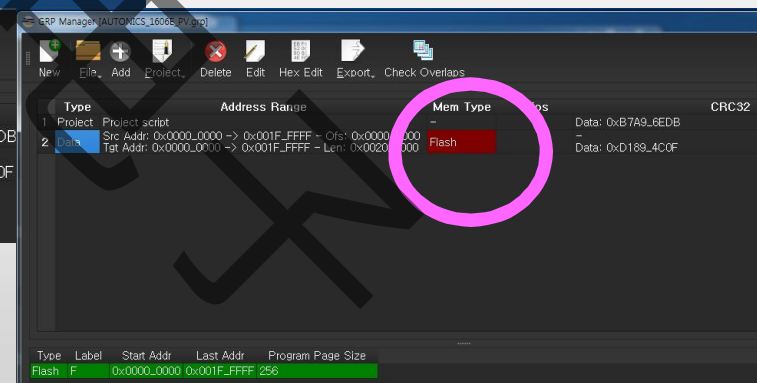
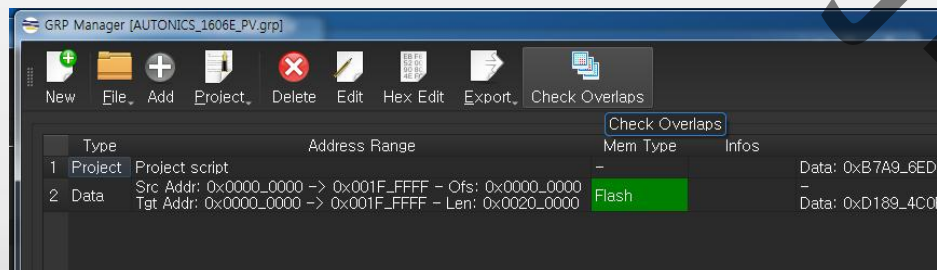
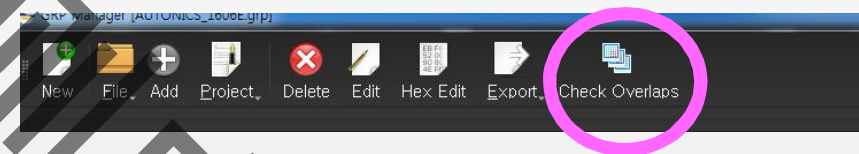
- Decide by results after actual application

```
93 // Power Supply on
94 #prog -o cmd -c pps -v on
95 // Target Connection
96 #prog -o cmd -c connect
97 // Blank Check memory
98 #prog -o cmd -c blankcheck -m flash -t h0000 -l h100000
99 // Programs memory
100 #prog -o cmd -c program -m flash -s h0000 -t h0000 -l h100000
101 // Verifies memory (readout method)
102 #prog -o cmd -c verify -v read -m flash -s h0000 -t h0000 -l h100000
103 // Blank Check Data memory
104 #prog -o cmd -c blankcheck -m ee -t hff200000 -l h8000
105 // Programs Data memory
106 #prog -o cmd -c program -m ee -s hff200000 -t hff200000 -l h8000
107 // Verifies Data memory (readout method)
108 #prog -o cmd -c verify -v read -m ee -s hff200000 -t hff200000 -l h8000
109 // Target disconnection
```

- **Novaflash**

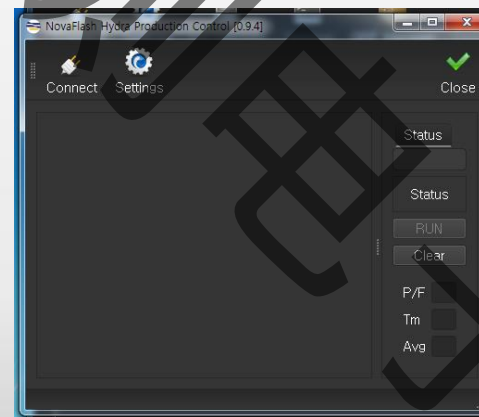
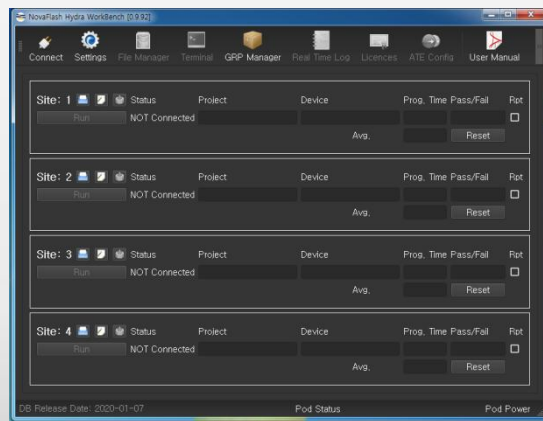
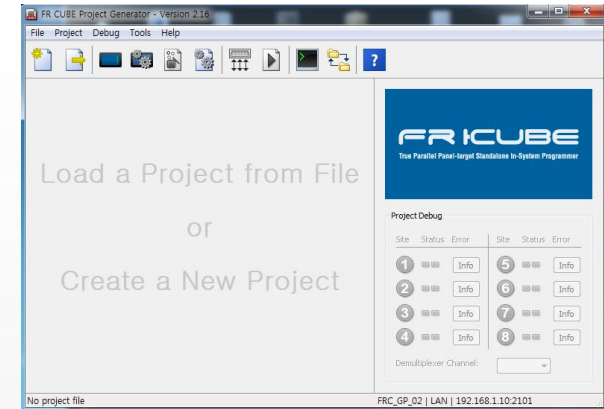
- Included self-diagnosis

- (Red: Error)



9, Default Software

- **Competitators**
 - Provide Utility for the **Engineer Mode only**
- **Novaflash**
 - Provide Utilities together for the **Engineer & Production**



10, AS Warranty

- **Competitors**
 - Normal 1 ~ 2years

- **Novaflash**
 - 3years

11, New Device Library Development Costs

- **Competitators**

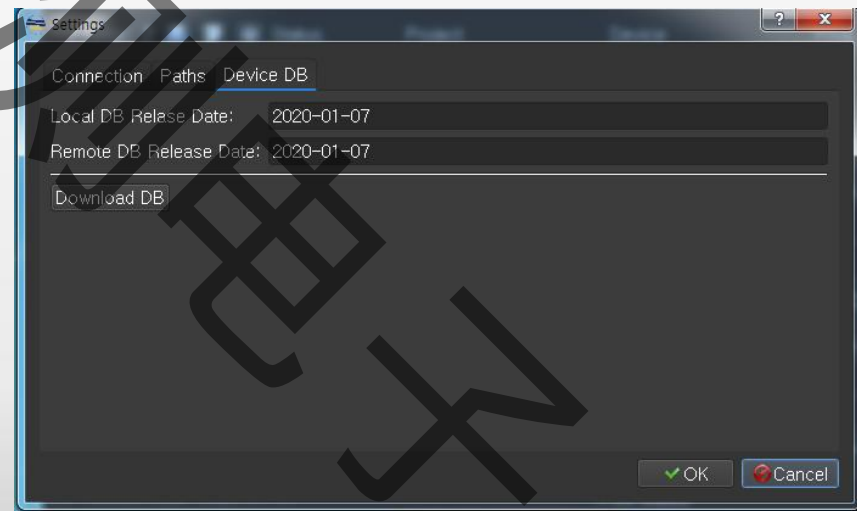
- **Charge** for separate development costs
- **Charge** for development when changing the internal Flash size of the Microm

- **Novaflash**

- **Free of Charge** for Development Device Driver
- (However, Need to charge if the material is unique or is used only by the requesting company)

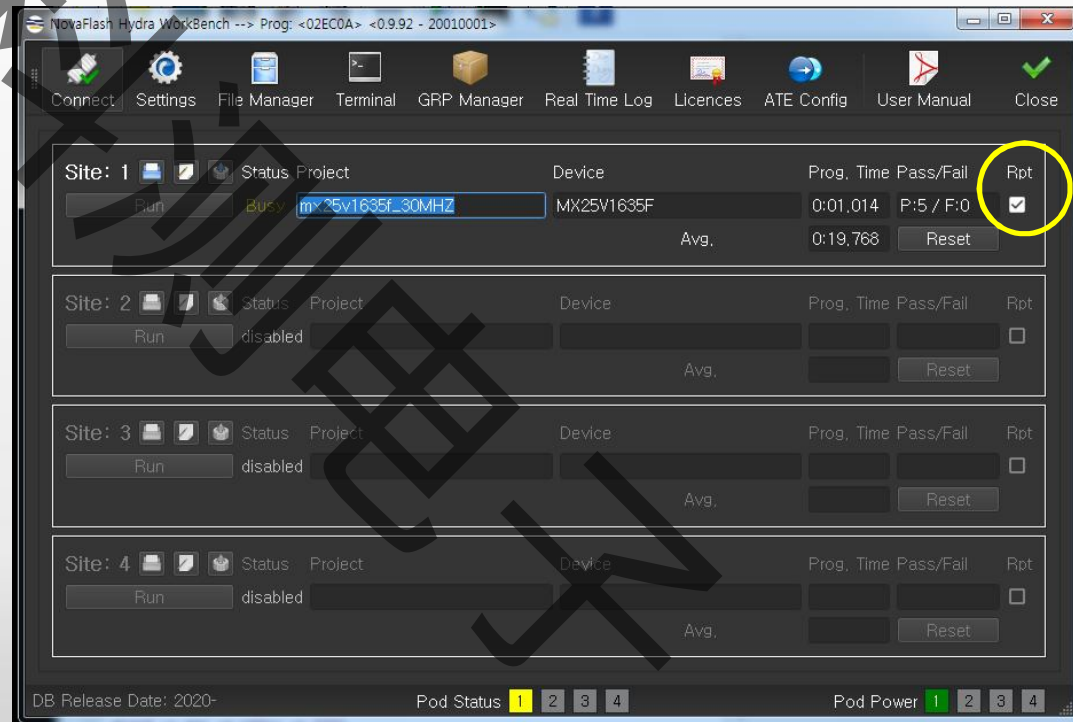
12, Remote Update

- **Competitators**
 - Update **not possible** by Real-time Database
- **Novaflash**
 - Update **possible** by Real-time Database



13, ISP Quality Check Functions

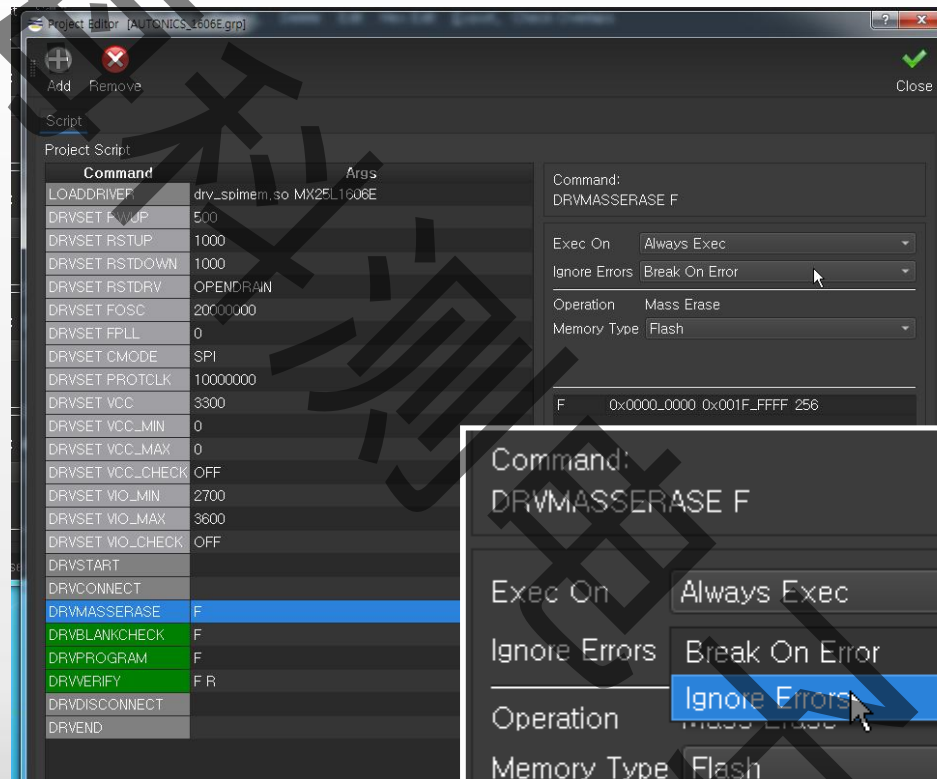
- **Competitors**
 - Unable to check ISP quality of newly created project files
- **Novaflash**
 - Infinite repeatability can be checked in real time



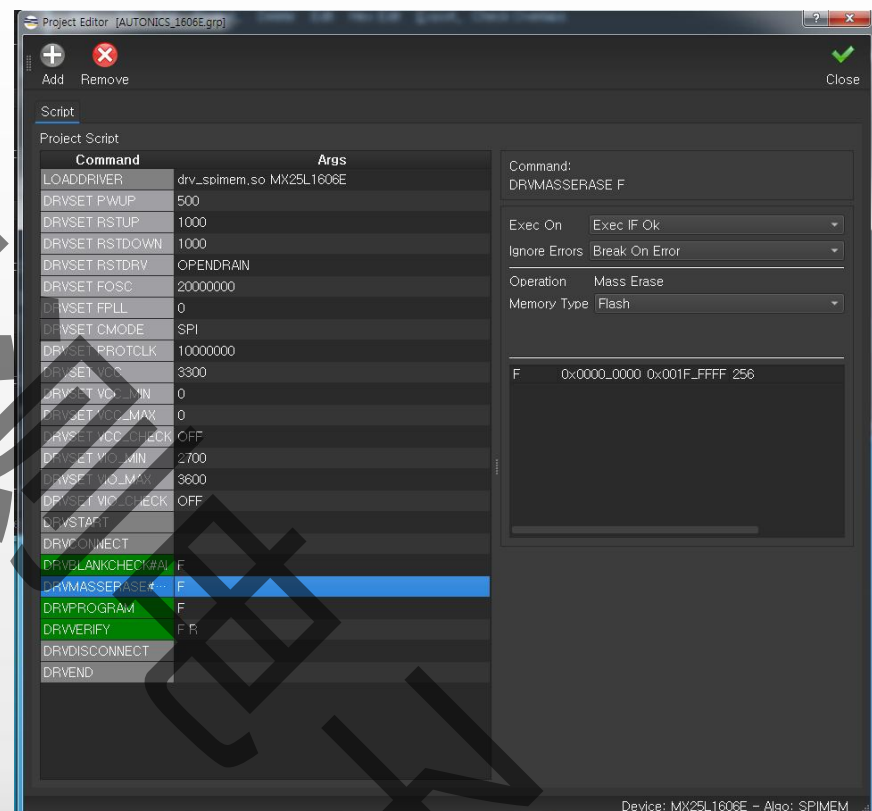
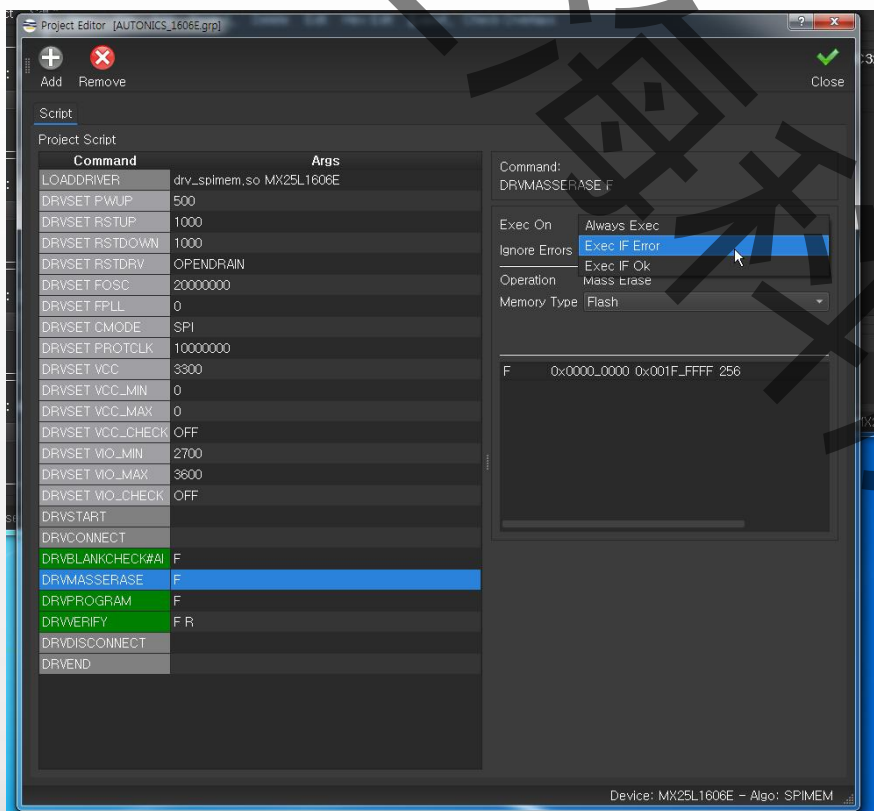
14, Various IF statement configuration functions

- **Competitators**
 - Unavoidable or difficult

- **Novaflash**
 - Easy

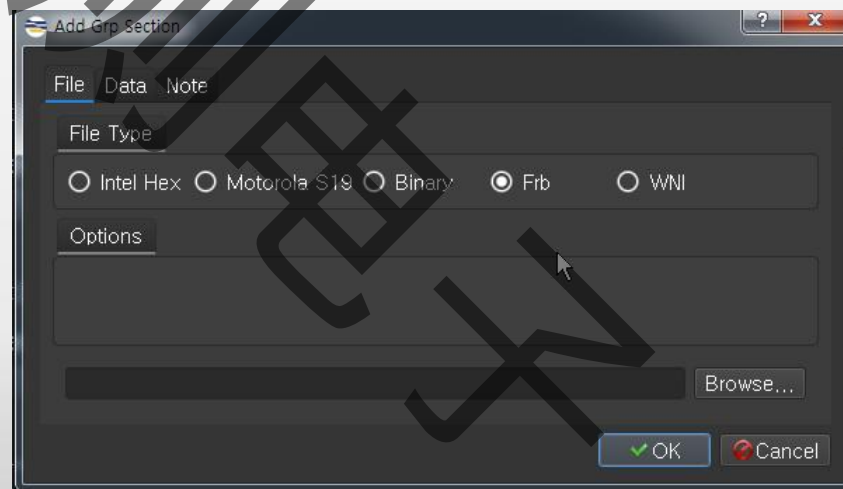


14, BEPV Example (Blankcheck, Erase, Program, Verify)



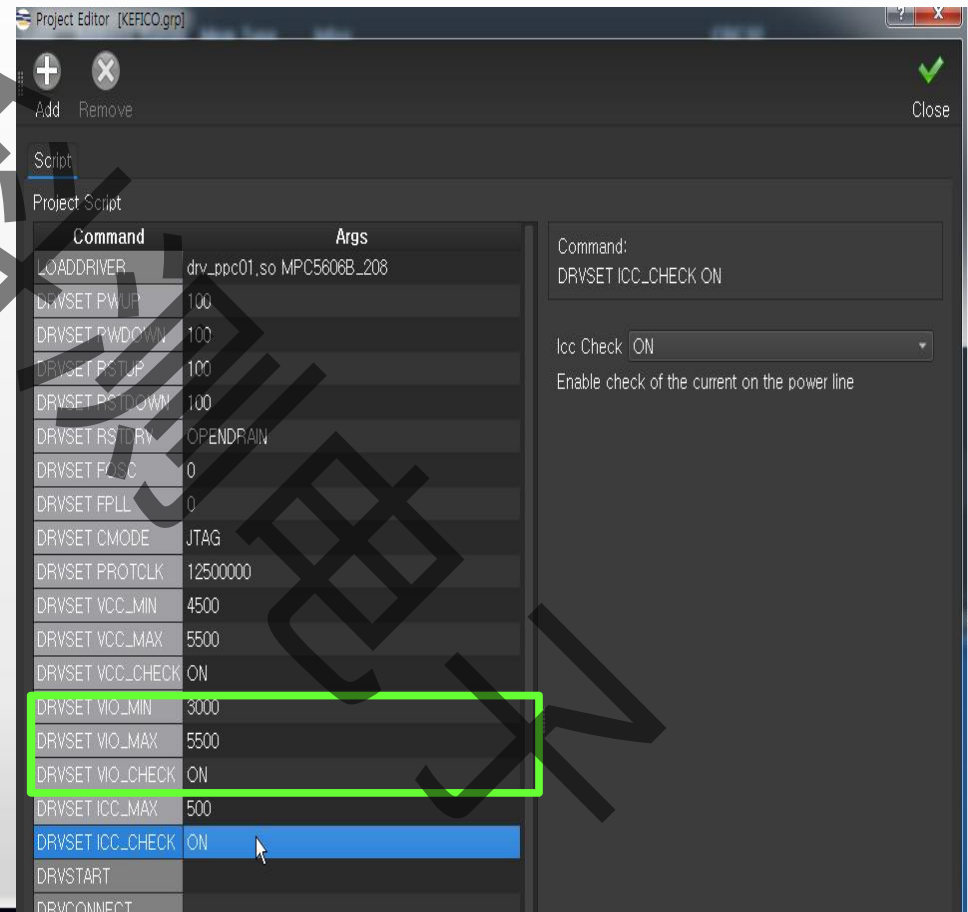
15, Other ISP Tool File Redevelopment Functions

- **Competitors**
 - **NONE**
- **Novaflash**
 - Provide FRB (for FlashRunner) and WNI (for FRCUBE & WirtueNow)
 - Existing line tools can be applied instead (data file compatible)



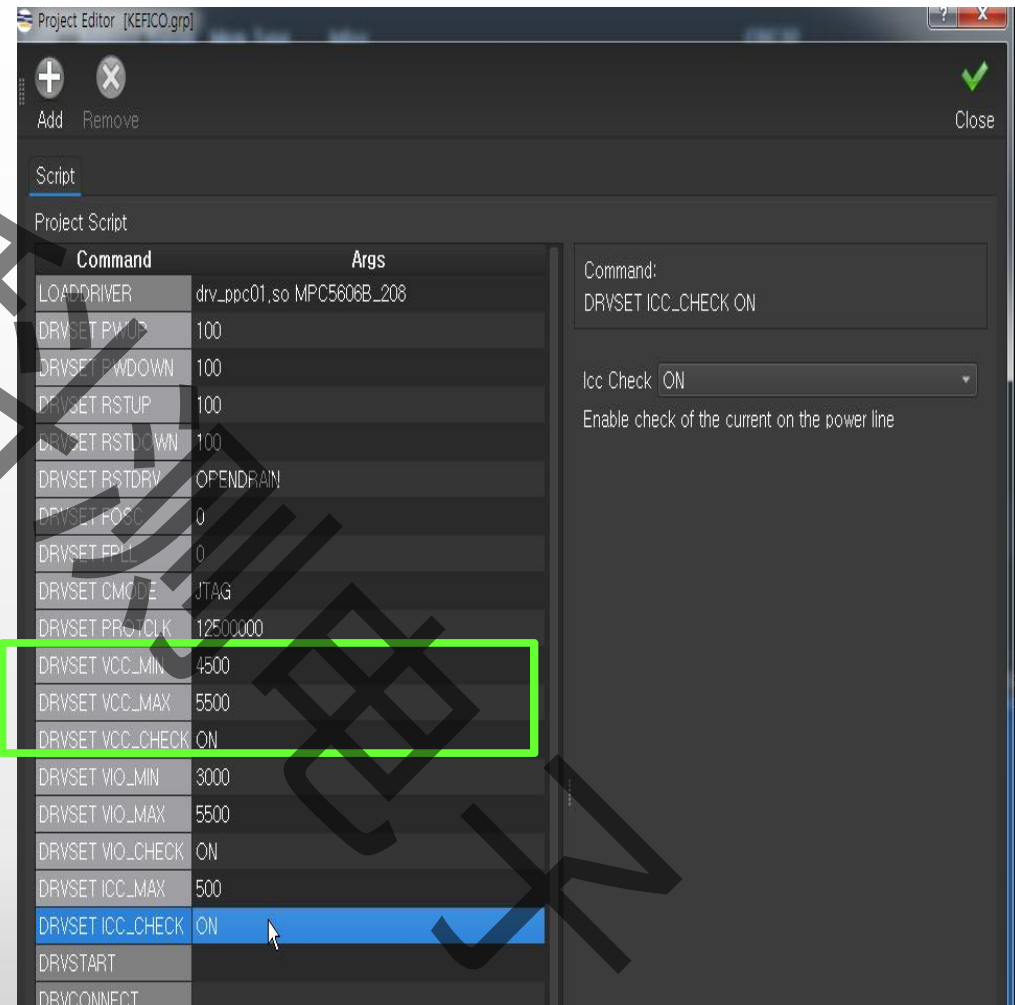
16, Signal Line Voltage Check Function

- **Competitators**
 - Some products are available, but one time Check
- **Novaflash**
 - Real time monitoring



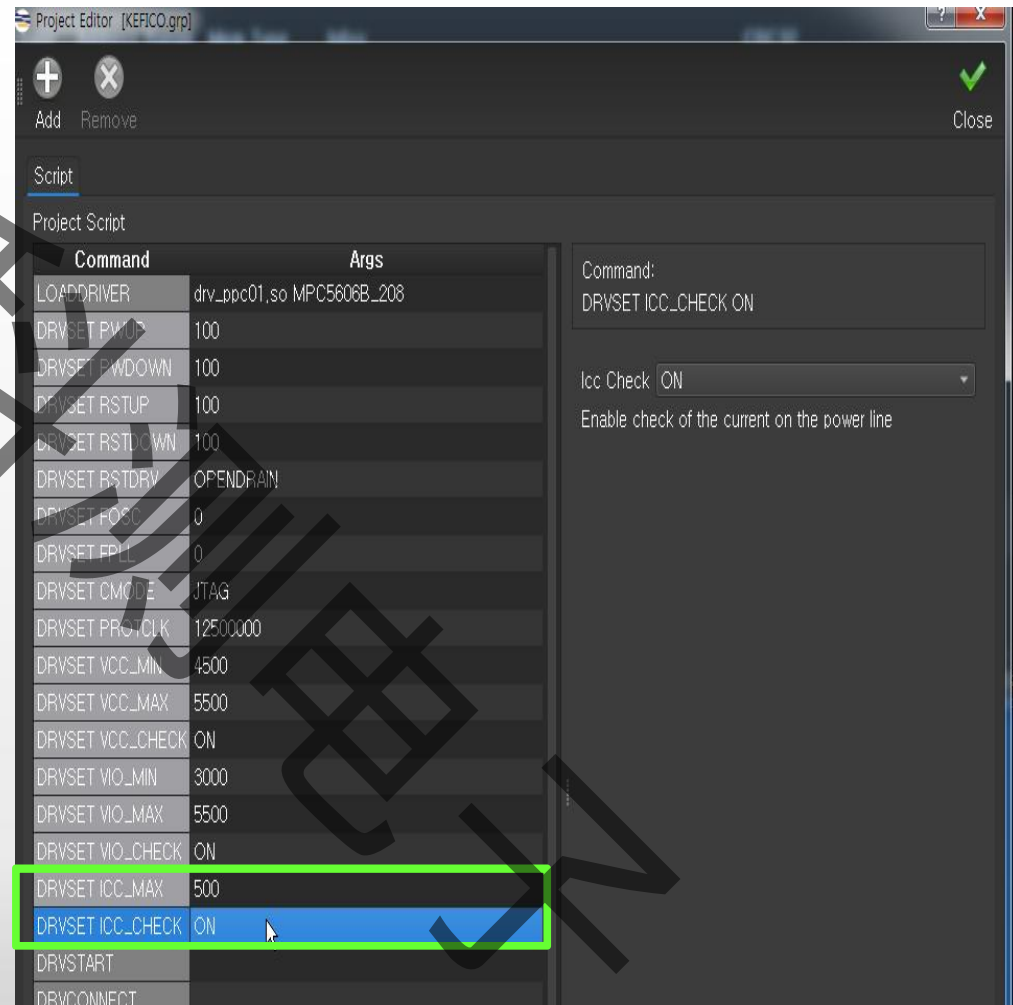
17, UUT power voltage check function

- **Competitators**
 - **NONE**
- **Novaflash**
 - **Real time monitoring**



18, UUT Current Check Function

- **Competitators**
 - **NONE**
- **Novaflash**
 - **Real time monitoring**



19, Competitive pricing structure

- **Competitors**

- **Charge** for new device development
- **Charge** when changing the internal Flash capacity of Micom
- Warranty: 1Year ~ 2Years

- **Novaflash**

- **FOC** for new device development
- **FOC** when changing the internal Flash capacity of Micom
- Warranty: 3years

20, Delivers a variety of Promotion

- **Competitors**

- none

- **Novaflash**

- Free of Charge

- Provide programmer unit before installation ordered product.
 - Provide programmer unit during 1 month for evaluation
 - Short Time rental
 - Others

- In case of a defect, the device level is replaced.

<Appendix> Speed Comparison

Same Clock / Same Source			sec
Clock Speed	NF	FR CUBE	FR 2.0
Cable Length	5Meter	30cm	30cm
1MHZ	1:19.463		
5MHZ	28.820		
10MHZ	22.309	22.573s	
20MHZ	19.162	20.31s	25MHz: 22s
30MHZ	18.470	X	X
40MHZ	17.827	X	X
50MHZ	17.305	X	X

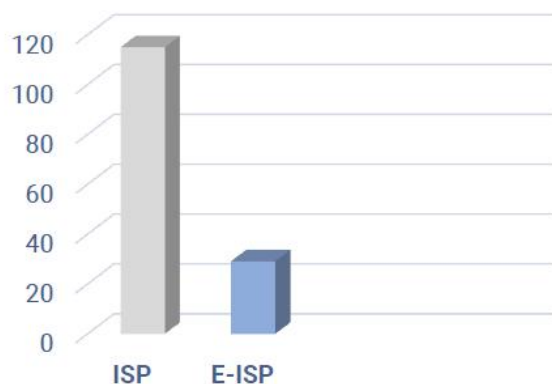
< Appendix > Speed Comparison

Performance Comparison

Infineon TC39x:

- Infineon TC39xA-256F300
- 16MB PFlash, 1152KB DFlash
- ISP programming time: 115 seconds
- **E-ISP programming time: 29.137 seconds**

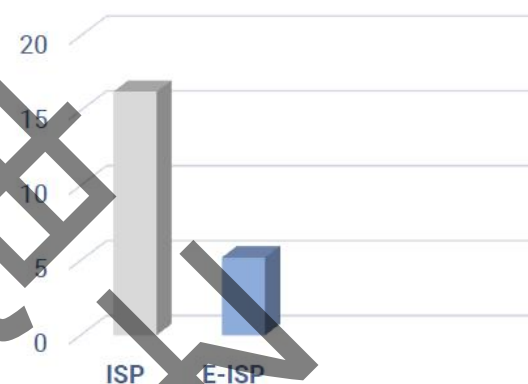
Programming Times (Seconds)



Infineon TC26x:

- Infineon TC26xD-40F200
- 2,5MB PFlash, 96KB DFlash
- ISP programming time: 16.257 seconds
- **E-ISP programming time: 5.192 seconds**

Programming Times (Seconds)



ISP: JTAG, 12.5MHz
E-ISP: DAP, 33 MHz, P5V

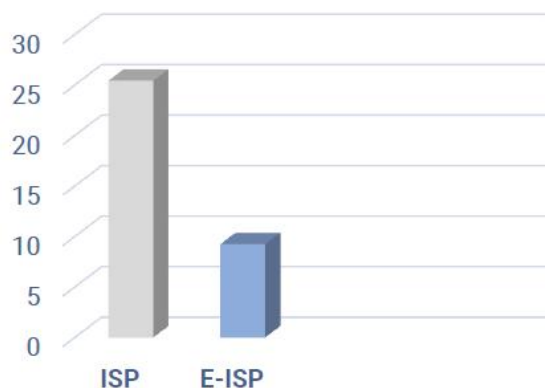
< Appendix > Speed Comparison

Performance Comparison

Infineon TC27x:

- Infineon TC27xTP-64F200
- 4MB PFlash, 448KB DFlash
- ISP programming time: 25.414 seconds
- **E-ISP programming time: 9.23 seconds**

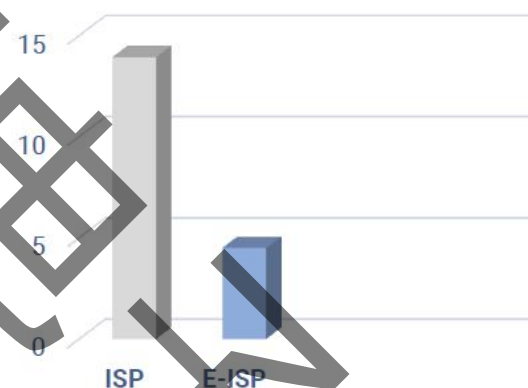
Programming Times (Seconds)



Infineon TC23x:

- Infineon TC23xLP-32F200N
- 2MB PFlash, 128KB DFlash
- ISP programming time: 13.923 seconds
- **E-ISP programming time: 4.232 seconds**

Programming Times (Seconds)



ISP: JTAG, 12.5MHz
E-ISP: DAP, 33 MHz, P5V

< Appendix > Reference Sites

- Europe
 - Varroc, Czech
 - Heller, Germany
- Asia
 - Valeo, Malaysia & India
 - Heller, China
 - BOSCH, China
 - INSPUR, China
 - MOBIS EMS



the clever way

novafish

Asia

Thank you!