


REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
-	RELEASE PER R.A. 3120	05/11/09	OK
A	REVISED PER ECO 3185	05/12/01	OK
B	REVISED PER ECO 3690	06/08/07	OK

Unless specified, all dimensions are in inches	DR	MAW	DATE	05/12/01	 PARADISE DATACOM <small>AN INTELEK PLC COMPANY</small>	
	CHK	OK	DATE	05/12/01		
	APVD	OK	DATE	05/12/01		
Tolerance in. / mm.					PROCEDURE, FIRMWARE FIELD UPGRADE, RCP CONTROLLERS, RM & CO SSPA PRODUCTS	
XX ±.01/±.25	MATERIAL					
XXX ±.005/±.13						
XXXX ±.001/±.025	FINISH					
XXXXX ±.0005/±.013	SCALE	CODE IDENT	SIZE	DWG NO.	REV	PG. 1
	NTS	IGLV3	A	204050	B	OF 5

Supplied software

- `_code.zip` –zip file, contains programmer software (avreal32.exe); firmware hex file (~code.hex); executable batch files (prg_LPTx.bat). prg_LPT1.bat for LPT1 prg_LPT2 for LPT2 and prg_LPT3 for LPT3;
- Dlportio.zip –zip file, contains parallel port drivers required by Windows OS;
- DisableWarmBoot.reg and EnableWarmBoot.reg - Parallel port behavior management utilities.

Required hardware

- PC with native parallel port (LPT1; LPT2 and LPT3 are supported. If your PC LPT port is mapped to an unusual memory address and shows a number higher than 3, contact Paradise Datacom LLC for support). Port must be configured for EPP/ECP or bidirectional mode;
- Installed Windows OS (98, NT, 2000 or XP are supported versions of Windows);
- IEEE-1284 Compliant cable (DB25 Female – DB25 Male straight through. This cable is available for purchase in most electronic supply stores).
- Modified Altera Byte Blaster II cable (required only for Compact Outdoor SSPA flash upgrade). See **Table 1** for the cable pin-out. This cable is available from Paradise Datacom as a special-order item.
- STK300 adapter (required only for programming RF modules inside RM SSPA).This cable is available from Paradise Datacom as a special-order item.

Step-by Step procedure

1. Unpack dlportio.zip on the target PC. Run Setup.exe.
2. Run DisableWarmBoot.reg. Select OK to add Windows registry key. The key will forbid the Windows parallel port driver from scanning parallel port after system reboot. Reboot the computer.
3. Unpack code.zip into a temporary folder (for example - C:\tmp). After the files are unpacked, locate the _code subfolder.
4. **Make sure to power off hardware before the next step!**
 - a. **For RCP2/ RM SSPAs:** Connect PC LPT port to M&C Board J6 Program port through an IEEE1284 compliant cable (Port is located on the back side of the unit). Turn on the unit's power.
 - b. **For Compact Outdoor SSPAs:** Connect a modified Altera Byte Blaster II cable to CO SSPA M&C port J4. Connect an IEEE1284 cable between the PC LPT port and the Altera Byte Blaster II DB25 adapter. Turn on the unit's power.
 - c. **For RM SSPA RF modules:** Connect a STK 300 adapter into the module's programming connector. Connect an IEEE1284 cable between the PC LPT port and the STK 300 DB25 adapter. Turn on the unit's power. Note: Repeat the programming procedure for all available modules inside a RM SSPA. Refer to **Figure 2– 7** for details.
4. In _code subfolder, locate the batch file which suits your LPT port designation (For example: prg_LPT1.bat for LPT1 parallel port) and run it. The batch file will open a Command prompt console window and execute the firmware update. Do not interfere with the program until the entire process is complete. An example screenshot is shown in **Figure 1**.
5. Optional step. To restore default Windows parallel port behavior run the EnableWarmBoot.reg utility.

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C:\ Command Prompt
avreal\WIN32 - AVR controllers LPT programmer by Redchuk Alexandr
v1.24rev0 (Jun 20 2004 09:49:12)          ReAl@real.kiev.ua
bug-reports, suggestions and so on mail to avreal@real.kiev.ua

Command:
+megal28 -p1.0.4 -as -% -v -c ~code.hex
% LPT speed forced to 2500 cycles per 1mS
% Atmel adapter for STK200 found
% STK mode
% osc = 800kHz -> setup=7, hold=6+1
% Reset
% PgmOn reply 0xFFFE5300
% Synchronised after 1 try
% GetID reply 0x0030001E
% GetID reply 0x00300097
% GetID reply 0x00300002
% Read ID: 0x1E9702
Device connected, MEGA128 detected
% ReadOsccl command 0x38000000
% ReadOsccl reply 0x003800A9
% ReadOsccl command 0x38000100
% ReadOsccl reply 0x003800AB
% ReadOsccl command 0x38000200
% ReadOsccl reply 0x003800A0
% ReadOsccl command 0x38000300
% ReadOsccl reply 0x003800A0
% ReadFuses command 0x50000000
% ReadFuses reply 0x0050006F
% ReadFuses command 0x58000000
% ReadFuses reply 0x005800FF
% ReadFuses command 0x58080000
% ReadFuses reply 0x005808D1
% ReadFuses command 0x50080000
% ReadFuses reply 0x005008FD

Fuses
OSCCAL = A9, AB, A0, A0
BLEU   = 0
BODEN  = 1
SUT    = 2
CKSEL  = F
BLB1   = 3
BLB0   = 3
OCDEN  = 1
JTAGEN = 1
CKOPT  = 1
EESU   = 0
BSIZ   = 0
BRST   = 1
M103C  = 0
WDTON  = 1

Verifying CODE memory
..... done
passed
Reset pin released
adapter outputs -> Hi-Z state

U:\Engineering\Karpenko\FIRMWARE UPGRADE\_code>

```

Figure 1: Example, Command prompt console window showing successful upgrade

Table 1: Pin-out, Compact Outdoor SSPA Programming Cable

Altera ByteBlaster2 adapter	MS3116F18-32p	Signal Name	Wire Color
1	c	PRG_SCK	Grey
3	K	MISO	Orange
5	C	nReset	Brown
9	Y	MOSI	Blue
2	V	GND	Black
4	h	VCC	Red
-	g-d	Enable jumper	White

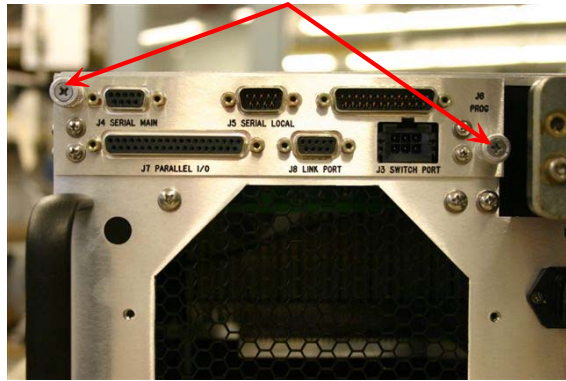


Figure 2: Loosen the two retaining thumbscrews from the RM SSPA Controller card connector plate.

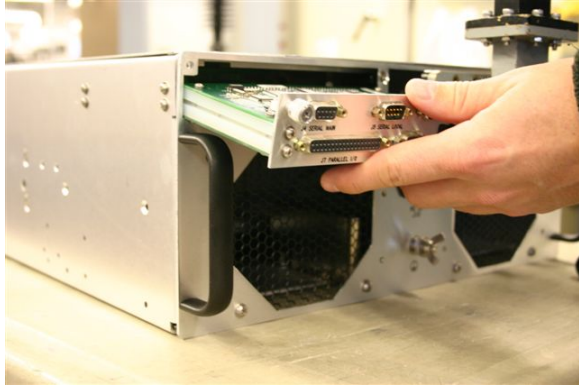


Figure 3: Remove the Controller card to gain access to module's programming connectors.

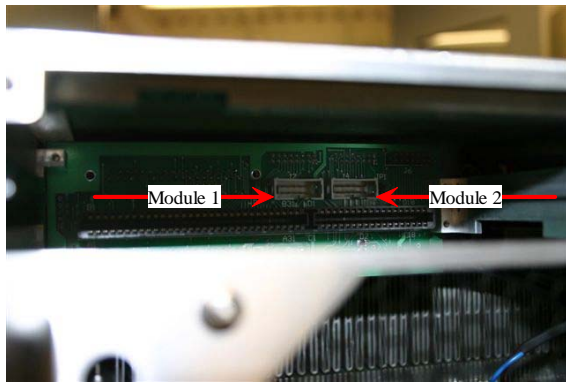


Figure 4: 4RU Rack Mount SSPA chassis have two module programming connectors.

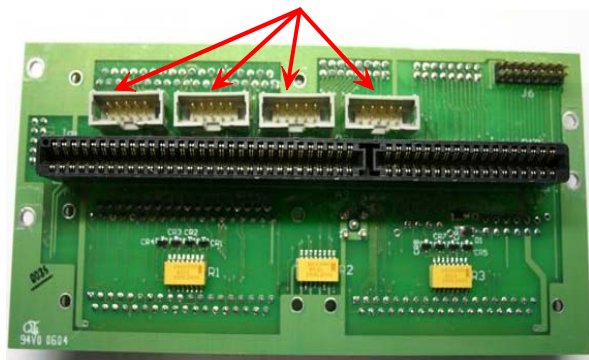


Figure 5: 6RU Rack Mount SSPA chassis have four module programming connectors.

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Figure 6: STK300 adapter

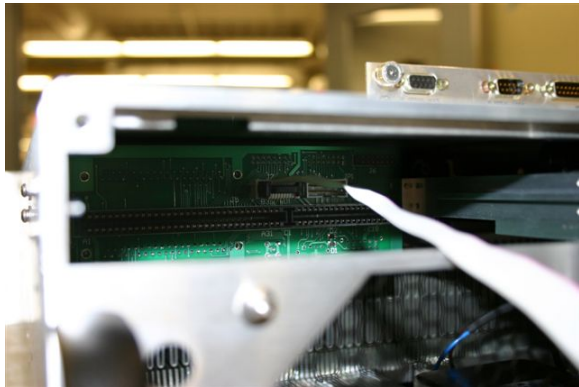


Figure 7: Insert programming adapter tail into programming connector.

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