

# ***DX 200***

BSC S10.5 GPRS/EDGE Hardware Implementation  
Procedure  
ANSI

**NOKIA**

The information in this document is subject to change without notice and describes only the product defined in the introduction of this documentation. This document is intended for the use of Nokia Networks' customers only for the purposes of the agreement under which the document is submitted, and no part of it may be reproduced or transmitted in any form or means without the prior written permission of Nokia Networks. The document has been prepared to be used by professional and properly trained personnel, and the customer assumes full responsibility when using it. Nokia Networks welcomes customer comments as part of the process of continuous development and improvement of the documentation.

The information or statements given in this document concerning the suitability, capacity, or performance of the mentioned hardware or software products cannot be considered binding but shall be defined in the agreement made between Nokia Networks and the customer. However, Nokia Networks has made all reasonable efforts to ensure that the instructions contained in the document are adequate and free of material errors and omissions. Nokia Networks will, if necessary, explain issues which may not be covered by the document.

Nokia Networks' liability for any errors in the document is limited to the documentary correction of errors. Nokia Networks WILL NOT BE RESPONSIBLE IN ANY EVENT FOR ERRORS IN THIS DOCUMENT OR FOR ANY DAMAGES, INCIDENTAL OR CONSEQUENTIAL (INCLUDING MONETARY LOSSES), that might arise from the use of this document or the information in it.

This document and the product it describes are considered protected by copyright according to the applicable laws.

NOKIA logo is a registered trademark of Nokia Corporation.

Other product names mentioned in this document may be trademarks of their respective companies, and they are mentioned for identification purposes only.

Copyright © Nokia Networks Oy 2002. All rights reserved.

---

No. of pages	Edited by/Translator	Author	Approved by
37/Eed	30 May 2002 J.Peltomäki	13 Mar 2002 Terhi Maukonen	13 Mar 2002 Pasi Kivimäki

## Contents

<b>Summary of changes</b>	<b>4</b>
<b>1 Purpose</b>	<b>5</b>
<b>2 Prerequisites</b>	<b>6</b>
<b>3 General description</b>	<b>7</b>
3.1 Enhanced Data Rates for Global Evolution (EDGE)	7
3.2 BCSU, PCU, Packet Control Unit (C72070)	7
3.3 PCU-S, Packet Control Unit (C74840)	7
3.4 GSWB, SW64B (C08790)	8
3.5 DMC-bus terminator DMCT2-S (C72440)	8
3.6 S10.5 BSC2A Hardware changes	9
3.7 BSC2i Hardware changes	11
<b>4 Preliminary step</b>	<b>13</b>
4.1 Upgrade Procedure execution time	13
4.2 Holistic Integrated Tester, HIT	13
4.3 Upgrade macro	13
4.4 Check the plug-in units before upgrade	14
4.5 Information from current software	14
4.6 Command calendar	15
<b>5 GSWB Expansion</b>	<b>16</b>
<b>6 BSC2A BCSU Unit upgrade</b>	<b>17</b>
6.1 PCU Track 9 PCM Configuration in BSC2A	18
6.2 BSC2A PCU PCM-Cables, track 9	19
6.3 PCU_S Track 7 PCM Configuration in BSC2A	20
6.4 BSC2A PCU_S PCM-Cables, Track 7	21
<b>7 BSC2i BCSU Unit upgrade</b>	<b>23</b>
7.1 PCU Track 9 PCM Configuration in BSC2i	24
7.2 BSC2i PCU PCM-Cables, track 9	25
7.3 PCU_S Track 8 PCM Configuration in BSC2i	26
7.4 BSC2i PCU_S PCM-Cables, Track 8	27
<b>8 DX200 BSC2A and BSC2i ET HW upgrade</b>	<b>28</b>
<b>9 Completion of the Upgrade</b>	<b>34</b>
9.1 Implementation of new optional feature	34
9.2 Cartridge Marking Labels	34
<b>10 Appendix, SW64B Jumper settings</b>	<b>35</b>
<b>11 Appendix, PCU and PCU_S Jumper settings</b>	<b>36</b>

**Summary of changes**

<b>Version</b>	<b>Date</b>	<b>Author</b>	<b>Comments</b>
1.0-0	20-Aug-2001	J.Peltomäki	First version
1.1-0	1-Oct-2001	T.Maukonen	ANSI modifications
1.2-0	13-Mar-2002	T.Maukonen	Minor changes to cable list and to chapter 3,4 and 5
2.0-0	30-May-2002	J.Peltomäki	First S10.5 version

## **1 Purpose**

This document describes the implementation of the Nokia DX200 GPRS/EDGE BSC Hardware in S10.5. The GPRS/EDGE Feature's functional descriptions are included in the S10.5 documentation (NED S10.5). The Plug-in unit jumper settings are described in the document; ***Plug-In unit Jumper settings.***

The GPRS/EDGE Network Integration is not within the scope of this document. For details on how to integrate the Gb interface to the SGSN, as well as how to set up the radio network for the GPRS/EDGE use, see NED documentation.

The GPRS/EDGE HW Implementation procedure is carried out using HIT, which is a Microsoft Windows® compatible program. The HIT macro for the GPRS/EDGE upgrade is **UPRGPR10A.HIT**.

## 2 Prerequisites

Persons performing the expansion work should have a good knowledge of the DX 200 system and preferably have previous DX 200 BSC expansion experience. The password of the BSC with authority 250 in all command classes is needed. It is recommended that a backup is taken from the software package according to the document '*Safecopy Instructions of DX200 BSC*' before installations. This document is included in the S10.5 NED.

The stability of the BSC should be verified prior to hardware installation work, by checking the alarm history and unit states. Alarm history should be checked for all main computer units. Diagnostics should be executed for all units which are modified during the extension. Switchover should be made for all duplicated units. Diagnostics results and alarm history should be analysed to ensure that there are no problems in the BSC.

A wrist band ESD Earthing device or a corresponding method must be used when handling DX 200 hardware equipment.

Installations should be done during periods of low traffic, for example, at night time. Each stage of the extension work should be commenced only if conditions remain stable. The BSC configuration should be returned to the last stable stage if unsolvable problems are encountered. During the extension work, the alarm situation should be monitored. All alarms which arise must be analysed and the reason for the alarm should be found. The traffic ability of the BSC is checked by testing separate call cases and following up the traffic with traffic specific commands (ZEEL, ZEEI, ZRCI, ZCEL, ZNET ). If night time work is done, the operational stability of the BSC should always be checked before leaving the site.

It is recommended that all available S10.5 Change Deliveries are installed to the BSC before the upgrade.

### 3 General description

This section describes hardware changes for the S10.5 GPRS/EDGE Feature in a BSC. The optional GPRS/EDGE feature brings some new BSC plug-in units.

#### 3.1 Enhanced Data Rates for Global Evolution (EDGE)

EDGE brings new Enhanced GPRS (EGPRS) feature. EGPRS is used for higher data rates than current GPRS configuration is offering. To further increase packet processing capacity, new HW configuration may be used by adding 2<sup>nd</sup> PCU (PCU-S plug-in unit) to each BCSU unit in BSC2A/BSC2i. The implementation of 2<sup>nd</sup> PCU requires also GSWB extension from 192 to 256 PCMs. Also the number of ETs can be extended from 112 to 144 in BSC2.

The PCU/ PCU\_S plug-in unit requires modifications to the current BCSU DMC-bus in BSC2A. New DMCT2-S terminators are added to each BCSU MC1C cartridge. This changes the interchangeability of MC1C to D.

#### 3.2 BCSU, PCU, Packet Control Unit (C72070)

The PCU is a plug-in unit that implements Gb, RLC (Radio Link Control) and MAC (Medium Access Control) interfaces in a BSC.

The PCU's PCM cables are connected to the PCU's front panel. The cable type is CFN.

The PCU unit receives and transmits TRAU frames to the Base Stations, and Frame Relay packets to the SGSN (Serving GPRS Support Node). The unit interfaces to the 16-bit DMC bus. Other interfaces are: internal 4 Mbit/s PCM line for the TRAU frames, internal 4 Mbit/s PCM line for the Frame Relay, the clock unit for the basic timing signals, side selection and identification logic. The PCM interface is in the front panel (euroconnector). Two RJ45 connectors for the Ethernet and one for the RS232 interfaces are in the front panel. Other signals are in the backplane connectors.

PCU:

- two 2.048 Mbit/s PCM lines interfacing to the DSP processors,
- two 2.048 Mbit/s PCM lines interfacing to the PowerQuicc II processor
- two 10/100 BaseTx type Ethernet interfaces
- PowerQuicc II Processor
  - DSP Processor with daughter card
- 16-bit wide DMC-interface.

#### 3.3 PCU-S, Packet Control Unit (C74840)

The PCU-S variant has same features as the PCU, but has a higher capacity processor.

PCU-S is a new PCU variant, which implements both Gb and RLC (Radio Link Control) / MAC (Medium Access Control) interface in the BSC.

The PCU unit receives and transmits TRAU frames to the Base Stations and Frame Relay packets (Sub-network Service) to the SGSN (Serving GPRS Support Node).

The unit interfaces to the 16-bit DMC bus and 4 Mbit/s PCM line.

In the front panel of the PCU, there is an Euroconnector for the PCM interface. There are also three RJ45 connectors: one for the RS232 interface and two for the LAN (Ethernet) interfaces. Other signals are in the backplane connectors.

### **3.4 GSWB, SW64B (C08790)**

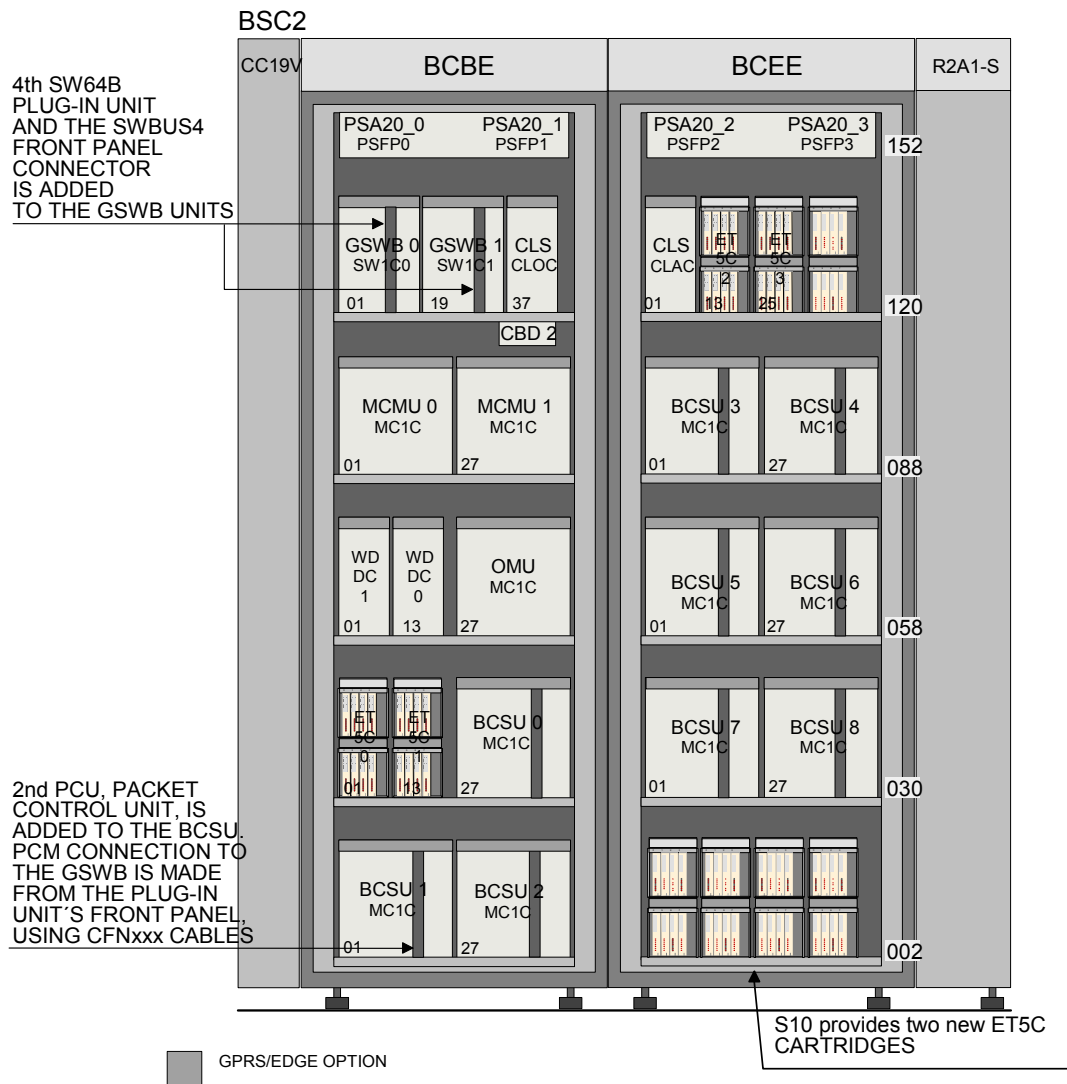
The GSWB can be extended with a fourth SW64B plug-in unit (extension from 192 PCMs to 256 PCMs). A front panel connector SWBUS4 is needed with the 4<sup>th</sup> SW64B plug-in unit.

### **3.5 DMC-bus terminator DMCT2-S (C72440)**

DMCT2-S is a DMC-bus terminator for the MC1C-cartridge. It cuts the maximum voltage of the bus signals to 3.3 volts and absorbs electrical disturbances in the bus. The PCU uses a low voltage DMC-bus driver. These drivers are designed for 3.3 volts although they work with 5 volt signal levels. Another reason this terminator is used, is to increase the reliability by minimising signal reflections in the bus. The termination block is equipped on both ends of the BCSU MC1C DMC -bus (positions R00 and R09 on the back of the cartridge).

### 3.6 S10.5 BSC2A Hardware changes

The following figure describes BSC2A hardware changes for the S10.5 release GPRS/EDGE feature (two PCU plug-in units installed in every BCSU unit).



**Figure 1.** BSC2A.

The PCU plug-in unit requires modifications to the current BCSU DMC-bus in BSC2A. DMCT2-S terminators are added to each BCSU MC1C cartridge. This changes the interchangeability of MC1C to D.

Removed HW-products:  
 - SWBUS3 from GSWB

### Added HW-products

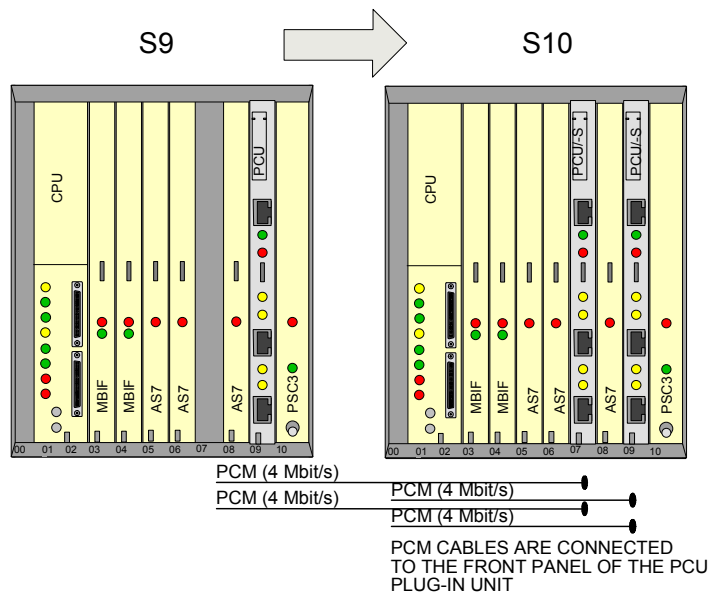
- The fourth SW64B plug-in-unit and SWBUS4 connector to the GSWB
- PCU-S plug-in-unit to slot 07 in all BCSUs
- PCM cables (cable type CFN) connecting to the GSWB
- two ET5C cartridges
- PDFU cables for two ET5C cartridges
- CLS cables for two ET5C cartridges
- PCM cables for two ET5C cartridges.

### PCM Assignments

#### BSC2

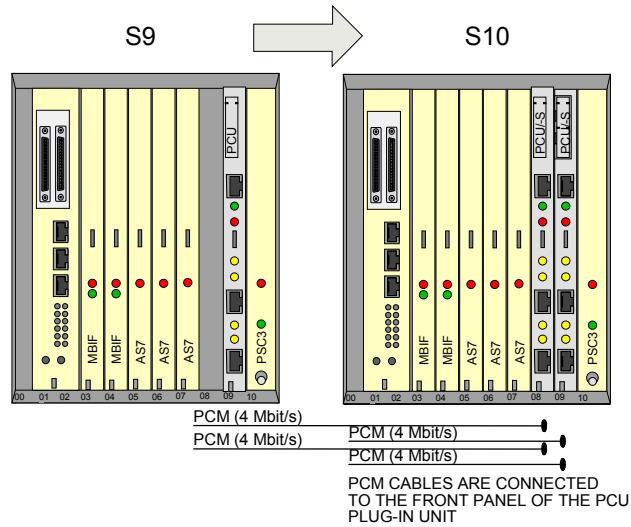
PCM 0-31                      32-63                      64-95                      96-127                      128-159                      160-191                      192-223                      224-255

CLS/OMU	ET5C0	BCSU7/AS7	ET5C3	ET5C5	BCSU1/PCUs9	BCSU1/PCUs7	ET5C7
BCSU0/AS7	ET5C0	BCSU8/AS7	ET5C3	ET5C5	BCSU2/PCUs9	BCSU2/PCUs7	ET5C7
BCSU1/AS7	ET5C1	ET5C2	ET5C4	ET5C6	BCSU3/PCUs9	BCSU3/PCUs7	ET5C7
BCSU2/AS7	ET5C1	ET5C2	ET5C4	ET5C6	BCSU4/PCUs9	BCSU4/PCUs7	ET5C7
BCSU3/AS7	ET5C0	ET5C3	ET5C4	ET5C6	BCSU5/PCUs9	BCSU5/PCUs7	ET5C8
BCSU4/AS7	ET5C0	ET5C3	ET5C4	ET5C6	BCSU6/PCUs9	BCSU6/PCUs7	ET5C8
BCSU5/AS7	ET5C1	ET5C2	ET5C5	BCSU0/PCUs7	BCSU7/PCUs9	BCSU7/PCUs7	ET5C8
BCSU6/AS7	ET5C1	ET5C2	ET5C5	BCSU0/PCUs9	BCSU8/PCUs9	BCSU8/PCUs7	ET5C8





- The fourth SW64B plug-in-unit and SWBUS4 connector to the GSWB
- PCM cables (cable type CFN) connecting PCU to the GSWB
- two ET5C cartridges
- PDFU cables for two ET5C cartridges
- CLS cables for two ET5C cartridges
- PCM cables for two ET5C cartridges.



### PCM Assignments

BSC2i

PCM 0-31      32-63      64-95      96-127      128-159      160-191      192-223      224-255

CLS/OMU	ET5C0	BCSU7/AS7	ET5C3	ET5C5	BCSU1/PCUs9	BCSU1/PCUs7	ET5C7
BCSU0/AS7	ET5C0	BCSU8/AS7	ET5C3	ET5C5	BCSU2/PCUs9	BCSU2/PCUs7	ET5C7
BCSU1/AS7	ET5C1	ET5C2	ET5C4	ET5C6	BCSU3/PCUs9	BCSU3/PCUs7	ET5C7
BCSU2/AS7	ET5C1	ET5C2	ET5C4	ET5C6	BCSU4/PCUs9	BCSU4/PCUs7	ET5C7
BCSU3/AS7	ET5C0	ET5C3	ET5C4	ET5C6	BCSU5/PCUs9	BCSU5/PCUs7	ET5C8
BCSU4/AS7	ET5C0	ET5C3	ET5C4	ET5C6	BCSU6/PCUs9	BCSU6/PCUs7	ET5C8
BCSU5/AS7	ET5C1	ET5C2	ET5C5	BCSU0/PCUs7	BCSU7/PCUs9	BCSU7/PCUs7	ET5C8
BCSU6/AS7	ET5C1	ET5C2	ET5C5	BCSU0/PCUs9	BCSU8/PCUs9	BCSU8/PCUs7	ET5C8

## 4 Preliminary step

### 4.1 Upgrade Procedure execution time

The total GPRS/EDGE BSC Hardware Upgrade time is 3-4 hours (for fully configured BSC:8+1 BCSU), depending on which options are installed. The execution times for the different steps are defined later in this manual.

During the GPRS/EDGE BSC upgrade, the GSM traffic is handled normally.

The modified units should be carefully monitored the day after the upgrade. Possible problems must be solved before any further actions are performed in the GPRS/EDGE Radionetwork set up procedure.

### 4.2 Holistic Integrated Tester, HIT

Persons performing the expansion work should have a good knowledge of the HIT program, before starting the upgrade work. Installation Instructions and details of the HIT program are available in the HIT documentation. See Document: *HIT 2.3 User Guide*.

### 4.3 Upgrade macro

Install the required upgrading macros. The S10.5 GPRS/EDGE upgrading macros are included in the diskette '**HIT Upgrading macros for S10.5**'. This diskette is delivered in the *S10.5* Software Release binders.

Set the following HIT settings on before starting the macro:

1. Options / Interpreter / Recover Errors (tick the box)
2. Options / Environment / Enforce Promptcheck to BOTH (tick the box)
3. Options / Save Settings / default

The diskette contains the following macros for the upgrade:

Macro file name	Purpose
UPRGPR10A.HIT	S10.5 GPRS/EDGE HW upgrade
UPRBUP10.HIT	S10.5 software package safecopy

Create the MML-device with the proper COM-port settings before starting the macro.

A Logfile name for the GPRS/EDGE upgrade is requested at the beginning of the upgrade phase. If the entered name is already in use, the logfile will be appended to the end of the file. If the user wishes to use a single logfile for different GPRS/EDGE upgrades, it can be done by giving the same logfile name.

## 4.4 Check the plug-in units before upgrade

Check that the required amount of plug-in units for the extension are available. It is also highly recommended to have **tested spare parts** available. Verify that the plug-in unit interchangeability codes and versions are correct and in accordance to the document *DX200 BSC and TCSM Hardware Revisions List System release S10.5*. This document is delivered in the *S10.5* Software Release binders.

## 4.5 Information from current software

It is recommended that part of the old *S10.5* hardware and software information is printed to the log file.

```
ZUSI ;
ZDDE:OMU:"ZGSC" ;
ZDDE:MCMU,0:"ZGSC" ;
ZDDE:MCMU,1:"ZGSC" ;
ZWTI:J ;
ZWTI:C ;
ZWTI:U ;
ZWTI:P ;
ZWIP:GSW ;
ZEOL ;
ZDSB ;
ZNET ;
ZNEL ;
ZNCI ;
ZAHO ;
ZDBD:OMU ;
ZDBS:BSDATA,0 ;
ZDBS:EQUIPM,0 ;
ZDBS:OEDATA,0 ;
```

## **4.6 Command calendar**

The command calendar tasks may disturb the GPRS/EDGE HW upgrade. Because of this, all command calendar tasks must be stopped before the upgrade.

Check the current tasks with command:

```
ZICL;
```

The calendar tasks are to be stopped with command:

```
ZICB:<id>:BLOCK;
```

## 5 GSWB Expansion

The execution time of this step is half an hour. GSWB hardware is installed first by using a MCMU,0 for the HW extension and then by making an MCMU switchover. In this step the fourth SW64B plug-in unit is installed.

First, change the state of the MCMU,0 to SP-EX:

```
ZUSC:MCMU,0:SP,;
```

The GSWB extension must be installed first to the GSW,0 to ensure that GSWB size is updated to the SWICOP-process properly.

Change the state of the MCMU from SP-EX to state SE-NH:

```
ZUSC:MCMU,<index>:TE,;  
ZUSC:MCMU,<index>:SE,;  
ZUSC:MCMU,<index>:SE,;
```

Switch the MCMU cartridge power off from the PSC3 power supply.  
Print the GSWB hardware configuration with commands:

```
ZWTI:P:MCMU,<index>;  
ZWTI:P:GSW,<index>;
```

Set the SW64B jumpers according to the document; *"Jumper Settings of Plug-in units and Location of Read Only Memory Circuits"*. See Appendix 11.

Install the SW64B card or cards to track four/five in the GSWB:

1. Switch the GSWB cartridge power off from the PSC1 power supply.
2. Install the SW64B plug-in unit(s) to the SE-NH MCMU's SW1C GSWB cartridge (track four/five). Ensure that the plug-in unit is firmly installed in its place. Connectors in the motherboard of the cartridge are tight, and if the plug-in unit's connector is not in full contact with the motherboard, the fault may appear later on, when the BSC has been taken into use.
3. Install an SWBUS3/SWBUS4 bus extender to the GSWB.
4. Install new PCM cables for the PCU/PCU\_S plug-in units. Connect them to the back of the SW1C cartridge (see cable lists in BCSU section for details). ¼ EURO Connector of CFN-PCM cable is connected to the PCU card and 1/8 connector to the GSWB.
5. BSC2A and BSC2i optional: Install the PCM cables for the ET5C cartridges
6. After the GSWB HW and PCM cables are installed, switch the GSWB cartridge power on again.

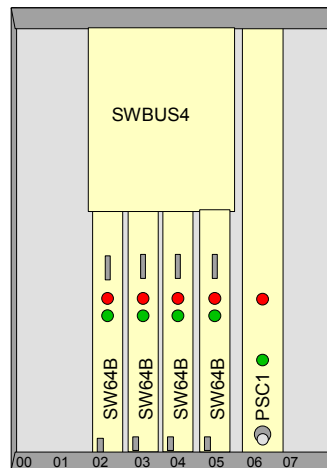
When installing the PCM cabling, avoid sharp bends and make sure that the cables are not pulled too tight. The BSC may be carrying traffic during the HW upgrade and, therefore, special care must be taken to avoid disconnecting other cables or connectors.

Create an SW64B plug-in unit(s):

ZWTP:GSW,<index>:SW64B,2,4; and/or ZWTP:GSW,<index>:SW64B,3,5;

Switch the MCMU cartridge power on from the PSC3 power supply. Change the MCMU state to TE-EX:

ZUSC:MCMU,<index>:SE,;  
ZUSC:MCMU,<index>:TE,;



The GSWB SW1C Cartridge.

Run diagnostics.

ZUDU:MCMU,<index>;

If diagnostics fail, follow the steps described *in Diagnosis Reports, Alarm Reference Manual*. Once the diagnostics have been passed, change the MCMU state to SP-EX.

ZUSC:MCMU,<index>:SP,;

Make a MCMU switchover.

ZUSC:MCMU,<WO\_index>:SP,;

**Repeat these steps for the MCMU,1.**

## 6 BSC2A BCSU Unit upgrade

The execution time of this step is approximately 15 minutes per BCSU. Thus, a fully configured BSC (1+8 BCSU) BCSU upgrade takes approximately 2 hours. GPRS/EDGE hardware is installed using a spare BCSU for the HW upgrade and by making BCSU switchovers until every unit is upgraded. First, change the BCSU state from SP-EX to SE-NH:

```
ZUSC:BCSU,<index>:TE,;
ZUSC:BCSU,<index>:SE,;
ZUSC:BCSU,<index>:SE,;
```

Switch the BCSU cartridge power off from the PSC3 power supply.

Check that the PCU / PCU\_S plug-in unit jumpers are set according to the instructions (see documents *"Jumper Settings Of Plug-in Units And Location Of Read Only Memory Circuits"*).

### Options:

1. Install the PCU/PCU_S to BCSU track 9, see sections 6.1 → 6.2
--

2. Install the PCU_S to BCSU track 7, see sections 6.3 → 6.4
--

Switch the BCSU cartridge power on from the PSC3 power supply. Change the BCSU state to TE-EX .

```
ZUSC:BCSU,<index>:SE,;
ZUSC:BCSU,<index>:TE,;
```

Run diagnostics.

```
ZUDU:BCSU,<index>;
```

If diagnostics fail, follow the steps described in *Diagnosis Reports, Alarm Reference Manual*. Once the diagnostics have been passed, change the BCSU state to SP-EX:

```
ZUSC:BCSU,<index>:SP,;
```

Change the working BCSU to SP-EX :

```
ZUSC:BCSU,<index>:SP,;
```

Repeat these steps for all BCSUs.

## 6.1 PCU Track 9 PCM Configuration in BSC2A

Install the PCU/PCU\_S to BCSU track 9. Connect two internal 4M PCM cables (cables which are coming from the GSWB) to the PCU/PCU\_S. See cable lists for details. One PCM is used for the Abis and one for the Gb interface. PCMs will be defined with two plug-in unit functions: **PCUDSP** and **PCUPPC**.

The PCU plug-in unit is created to the EQUIPM database with the following MML-command (if used Plug-in unit is a new PCU\_S –type, change the PIU type in command to **PCU\_S**):

```
ZWTP:BCSU,0:PCU,4,9::PCUDSP,4,156,TSL,0&&31:PCUDSP,4,157,TSL,0&&31:PCU
PPC,4,158,TSL,0&&31:PCUPPC,4,159,TSL,0&&31;
```

ZWTP:BCSU,1:PCU,4,9::PCUDSP,4,160,TSL,0&&31:PCUDSP,4,161,TSL,0&&31:PCU  
PPC,4,162,TSL,0&&31:PCUPPC,4,163,TSL,0&&31;

ZWTP:BCSU,2:PCU,4,9::PCUDSP,4,164,TSL,0&&31:PCUDSP,4,165,TSL,0&&31:PCU  
PPC,4,166,TSL,0&&31:PCUPPC,4,167,TSL,0&&31;

ZWTP:BCSU,3:PCU,4,9::PCUDSP,4,168,TSL,0&&31:PCUDSP,4,169,TSL,0&&31:PCU  
PPC,4,170,TSL,0&&31:PCUPPC,4,171,TSL,0&&31;

ZWTP:BCSU,4:PCU,4,9::PCUDSP,4,172,TSL,0&&31:PCUDSP,4,173,TSL,0&&31:PCU  
PPC,4,174,TSL,0&&31:PCUPPC,4,175,TSL,0&&31;

ZWTP:BCSU,5:PCU,4,9::PCUDSP,4,176,TSL,0&&31:PCUDSP,4,177,TSL,0&&31:PCU  
PPC,4,178,TSL,0&&31:PCUPPC,4,179,TSL,0&&31;

ZWTP:BCSU,6:PCU,4,9::PCUDSP,4,180,TSL,0&&31:PCUDSP,4,181,TSL,0&&31:PCU  
PPC,4,182,TSL,0&&31:PCUPPC,4,183,TSL,0&&31;

ZWTP:BCSU,7:PCU,4,9::PCUDSP,4,184,TSL,0&&31:PCUDSP,4,185,TSL,0&&31:PCU  
PPC,4,186,TSL,0&&31:PCUPPC,4,187,TSL,0&&31;

ZWTP:BCSU,8:PCU,4,9::PCUDSP,4,188,TSL,0&&31:PCUDSP,4,189,TSL,0&&31:PCU  
PPC,4,190,TSL,0&&31:PCUPPC,4,191,TSL,0&&31;

After the PCU hardware has been created, connect the functional unit.

ZWUC:BCSU,<index>:PCU,4;

### In BSC2A:

Install DMCT2-S DMC-bus terminators to the back of the BCSU MC1C-cartridge. The termination block is installed to both ends of the MC1C DMC-bus, positions R00 and R09 at the back of the cartridge. Update the interchangeability of MC1C to D. Cover the old code on the interchangeability label by using a drawing pen or replace the label if only one interchangeability code is printed on the label. DMCT2-S terminators are already installed in the High Capacity BSC2i.

## 6.2 BSC2A PCU PCM-Cables, track 9

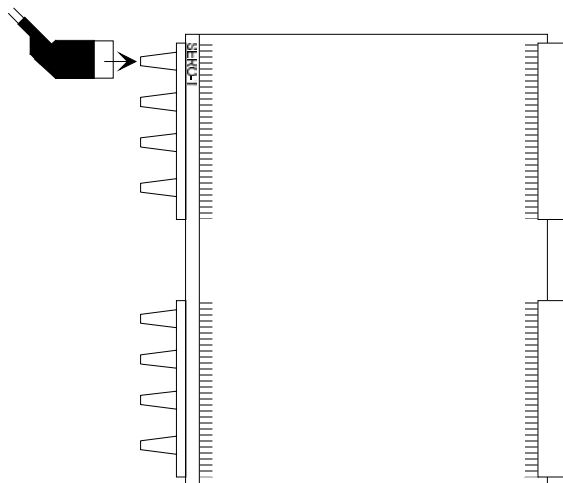
BSC2A PCU PCM-Cables, Cable list for BCBE rack:

No.	Rack	FE	Connector	Rack	FE	Connector	Type	Use
1.100	BCBE	BCSU 0 / PCU	030.27F 09R1	BCBE	SW1C 0	120.01B 04R8	CFN020	PCM
1.101	BCBE	BCSU 0 / PCU	030.27F 09R3	BCBE	SW1C 1	120.19B 04R8	CFN018	PCM
1.102	BCBE	BCSU 1 / PCU	002.01F 09R1	BCBE	SW1C 0	120.01B 04S1	CFN026	PCM
1.103	BCBE	BCSU 1 / PCU	002.01F 09R3	BCBE	SW1C 1	120.19B 04S1	CFN024	PCM
1.104	BCBE	BCSU 2 / PCU	002.27F 09R1	BCBE	SW1C 0	120.01B 04S2	CFN024	PCM
1.105	BCBE	BCSU 2 / PCU	002.27F 09R3	BCBE	SW1C 1	120.19B 04S2	CFN022	PCM

Cable list for BCEE rack:

No.	Rack	FE	Connector	Rack	FE	Connector	Type	Use
2.100	BCEE	BCSU 3 / PCU	088.01F 09R1	BCBE	SW1C 0	120.01B 04S3	CFN016	PCM
2.101	BCEE	BCSU 3 / PCU	088.01F 09R3	BCBE	SW1C 1	120.19B 04S3	CFN014	PCM
2.102	BCEE	BCSU 4 / PCU	088.27F 09R1	BCBE	SW1C 0	120.01B 04S4	CFN018	PCM
2.103	BCEE	BCSU 4 / PCU	088.27F 09R3	BCBE	SW1C 1	120.19B 04S4	CFN016	PCM
2.104	BCEE	BCSU 5 / PCU	058.01F 09R1	BCBE	SW1C 0	120.01B 04S5	CFN024	PCM
2.105	BCEE	BCSU 5 / PCU	058.01F 09R3	BCBE	SW1C 1	120.19B 04S5	CFN022	PCM
2.106	BCEE	BCSU 6 / PCU	058.27F 09R1	BCBE	SW1C 0	120.01B 04S6	CFN022	PCM
2.107	BCEE	BCSU 6 / PCU	058.27F 09R3	BCBE	SW1C 1	120.19B 04S6	CFN020	PCM
2.108	BCEE	BCSU 7 / PCU	030.01F 09R1	BCBE	SW1C 0	120.01B 04S7	CFN028	PCM
2.109	BCEE	BCSU 7 / PCU	030.01F 09R3	BCBE	SW1C 1	120.19B 04S7	CFN026	PCM
2.110	BCEE	BCSU 8 / PCU	030.27F 09R1	BCBE	SW1C 0	120.01B 04S8	CFN026	PCM
2.111	BCEE	BCSU 8 / PCU	030.27F 09R3	BCBE	SW1C 1	120.19B 04S8	CFN024	PCM

¼ EURO Connector is connected to PCU card and 1/8 EURO to the GSWB.



### 6.3 PCU\_S Track 7 PCM Configuration in BSC2A

Install the PCU\_S to BCSU track 7. Connect two internal 4M PCM cables (cables which are coming from the GSWB) to the PCU\_S. See cable lists for details. One PCM is used for the Abis and one for the Gb interface. PCMs will be defined with two plug-in unit functions: **PCUDSP** and **PCUPPC**.

The PCU plug-in unit is created to the EQUIPM database with the following MML-command:

```
ZWTP:BCSU,0:PCU_S,2,7::PCUDSP,4,152,TSL,0&&31:PCUDSP,4,153,TSL,0&&31:P
CUPPC,4,154,TSL,0&&31:PCUPPC,4,155,TSL,0&&31;
```

```
ZWTP:BCSU,1:PCU_S,2,7::PCUDSP,4,192,TSL,0&&31:PCUDSP,4,193,TSL,0&&31:P
CUPPC,4,194,TSL,0&&31:PCUPPC,4,195,TSL,0&&31;
```

ZWTP:BCSU,2:PCU\_S,2,7::PCUDSP,4,196,TSL,0&&31:PCUDSP,4,197,TSL,0&&31:PCUPPC,4,198,TSL,0&&31:PCUPPC,4,199,TSL,0&&31;

ZWTP:BCSU,3:PCU\_S,2,7::PCUDSP,4,200,TSL,0&&31:PCUDSP,4,201,TSL,0&&31:PCUPPC,4,202,TSL,0&&31:PCUPPC,4,203,TSL,0&&31;

ZWTP:BCSU,4:PCU\_S,2,7::PCUDSP,4,204,TSL,0&&31:PCUDSP,4,205,TSL,0&&31:PCUPPC,4,206,TSL,0&&31:PCUPPC,4,207,TSL,0&&31;

ZWTP:BCSU,5:PCU\_S,2,7::PCUDSP,4,208,TSL,0&&31:PCUDSP,4,209,TSL,0&&31:PCUPPC,4,210,TSL,0&&31:PCUPPC,4,211,TSL,0&&31;

ZWTP:BCSU,6:PCU\_S,2,7::PCUDSP,4,212,TSL,0&&31:PCUDSP,4,213,TSL,0&&31:PCUPPC,4,214,TSL,0&&31:PCUPPC,4,215,TSL,0&&31;

ZWTP:BCSU,7:PCU\_S,2,7::PCUDSP,4,216,TSL,0&&31:PCUDSP,4,217,TSL,0&&31:PCUPPC,4,218,TSL,0&&31:PCUPPC,4,219,TSL,0&&31;

ZWTP:BCSU,8:PCU\_S,2,7::PCUDSP,4,220,TSL,0&&31:PCUDSP,4,221,TSL,0&&31:PCUPPC,4,222,TSL,0&&31:PCUPPC,4,223,TSL,0&&31;

After the PCU hardware has been created, connect the functional unit.

ZWUC:BCSU,<index>:PCU\_S,2;

Install DMCT2-S DMC-bus terminators to the back of the BCSU MC1C-cartridge. The termination block is installed to both ends of the MC1C DMC-bus, positions R00 and R09 at the back of the cartridge. Update the interchangeability of MC1C to D. Cover the old code on the interchangeability label by using a drawing pen or replace the label if only one interchangeability code is printed on the label. DMCT2-S terminators are already installed in the High Capacity BSC2i. Terminators have been installed earlier if PCU has been installed to track 9 in earlier releases.

## 6.4 BSC2A PCU\_S PCM-Cables, Track 7

BSC2A PCU PCM-Cables, Cable list for BCBE rack:

No.	Rack	FE	Connector	Rack	FE	Connector	Type	Use
1.110	BCBE	BCSU 0 / PCU	030.27F 07R1	BCBE	SW1C 0	120.01B 04R7	CFN020	PCM
1.111	BCBE	BCSU 0 / PCU	030.27F 07R3	BCBE	SW1C 1	120.19B 04R7	CFN018	PCM
1.112	BCBE	BCSU 1 / PCU	002.01F 07R1	BCBE	SW1C 0	120.01B 05R1	CFN026	PCM
1.113	BCBE	BCSU 1 / PCU	002.01F 07R3	BCBE	SW1C 1	120.19B 05R1	CFN024	PCM
1.114	BCBE	BCSU 2 / PCU	002.27F 07R1	BCBE	SW1C 0	120.01B 05R2	CFN024	PCM
1.115	BCBE	BCSU 2 / PCU	002.27F 07R3	BCBE	SW1C 1	120.19B 05R2	CFN022	PCM

Cable list for BCEE rack:

No.	Rack	FE	Connector	Rack	FE	Connector	Type	Use
2.120	BCEE	BCSU 3 / PCU	088.01F 07R1	BCBE	SW1C 0	120.01B 05R3	CFN016	PCM
2.121	BCEE	BCSU 3 / PCU	088.01F 07R3	BCBE	SW1C 1	120.19B 05R3	CFN014	PCM
2.122	BCEE	BCSU 4 / PCU	088.27F 07R1	BCBE	SW1C 0	120.01B 05R4	CFN018	PCM
2.123	BCEE	BCSU 4 / PCU	088.27F 07R3	BCBE	SW1C 1	120.19B 05R4	CFN016	PCM
2.124	BCEE	BCSU 5 / PCU	058.01F 07R1	BCBE	SW1C 0	120.01B 05R5	CFN024	PCM
2.125	BCEE	BCSU 5 / PCU	058.01F 07R3	BCBE	SW1C 1	120.19B 05R5	CFN022	PCM
2.126	BCEE	BCSU 6 / PCU	058.27F 07R1	BCBE	SW1C 0	120.01B 05R6	CFN022	PCM
2.127	BCEE	BCSU 6 / PCU	058.27F 07R3	BCBE	SW1C 1	120.19B 05R6	CFN020	PCM
2.128	BCEE	BCSU 7 / PCU	030.01F 07R1	BCBE	SW1C 0	120.01B 05R7	CFN028	PCM
2.129	BCEE	BCSU 7 / PCU	030.01F 07R3	BCBE	SW1C 1	120.19B 05R7	CFN026	PCM
2.130	BCEE	BCSU 8 / PCU	030.27F 07R1	BCBE	SW1C 0	120.01B 05R8	CFN026	PCM
2.131	BCEE	BCSU 8 / PCU	030.27F 07R3	BCBE	SW1C 1	120.19B 05R8	CFN024	PCM

¼ EURO Connector is connected to PCU card and 1/8 EURO to the GSWB.

## 7 BSC2i BCSU Unit upgrade

The execution time of this step is approximately 15 minutes per BCSU. Thus, a fully configured BSC (1+8 BCSU) BCSU upgrade takes approximately 2 hours. GPRS/EDGE hardware is installed using a spare BCSU for the HW upgrade and by making BCSU switchovers until every unit is upgraded. First, change the BCSU state from SP-EX to SE-NH:

```
ZUSC:BCSU,<index>:TE,;  
ZUSC:BCSU,<index>:SE,;  
ZUSC:BCSU,<index>:SE,;
```

Switch the BCSU cartridge power off from the PSC3 power supply.

Check that the PCU / PCU\_S plug-in unit jumpers are set according to the instructions (see documents *"Jumper Settings Of Plug-in Units And Location Of Read Only Memory Circuits"*).

1. Install the PCU/PCU\_S to BCSU track 9, see sections 7.1 → 7.2

2. Install the PCU\_S to BCSU track 8, see sections 7.3 → 7.4

Switch the BCSU cartridge power on from the PSC3 power supply. Change the BCSU state to TE-EX .

```
ZUSC:BCSU,<index>:SE,;  
ZUSC:BCSU,<index>:TE,;
```

Run diagnostics.

```
ZUDU:BCSU,<index>;
```

If diagnostics fail, follow the steps described in *Diagnosis Reports, Alarm Reference Manual*. Once the diagnostics have been passed, change the BCSU state to SP-EX:

```
ZUSC:BCSU,<index>:SP,;
```

Change the working BCSU to SP-EX :

```
ZUSC:BCSU,<index>:SP,;
```

**Repeat these steps for all BCSUs.**

## 7.1 PCU Track 9 PCM Configuration in BSC2i

Install the PCU/PCU\_S to BCSU track 9. Connect two internal 4M PCM cables (cables which are coming from the GSWB) to the PCU/PCU\_S. See cable lists for details. One PCM is used for the Abis and one for the Gb interface. PCMs will be defined with two plug-in unit functions: **PCUDSP** and **PCUPPC**.

The PCU plug-in unit is created to the EQUIPM database with the following MML-command (if used Plug-in unit is a new PCU\_S –type, change the PIU type in command to **PCU\_S**):

```
ZWTP:BCSU,0:PCU,4,9::PCUDSP,4,156,TSL,0&&31:PCUDSP,4,157,TSL,0&&31:PCU
PPC,4,158,TSL,0&&31:PCUPPC,4,159,TSL,0&&31;
```

```
ZWTP:BCSU,1:PCU,4,9::PCUDSP,4,160,TSL,0&&31:PCUDSP,4,161,TSL,0&&31:PCU
PPC,4,162,TSL,0&&31:PCUPPC,4,163,TSL,0&&31;
```

```
ZWTP:BCSU,2:PCU,4,9::PCUDSP,4,164,TSL,0&&31:PCUDSP,4,165,TSL,0&&31:PCU
PPC,4,166,TSL,0&&31:PCUPPC,4,167,TSL,0&&31;
```

```
ZWTP:BCSU,3:PCU,4,9::PCUDSP,4,168,TSL,0&&31:PCUDSP,4,169,TSL,0&&31:PCU
PPC,4,170,TSL,0&&31:PCUPPC,4,171,TSL,0&&31;
```

```
ZWTP:BCSU,4:PCU,4,9::PCUDSP,4,172,TSL,0&&31:PCUDSP,4,173,TSL,0&&31:PCU
PPC,4,174,TSL,0&&31:PCUPPC,4,175,TSL,0&&31;
```

```
ZWTP:BCSU,5:PCU,4,9::PCUDSP,4,176,TSL,0&&31:PCUDSP,4,177,TSL,0&&31:PCU
PPC,4,178,TSL,0&&31:PCUPPC,4,179,TSL,0&&31;
```

```
ZWTP:BCSU,6:PCU,4,9::PCUDSP,4,180,TSL,0&&31:PCUDSP,4,181,TSL,0&&31:PCU
PPC,4,182,TSL,0&&31:PCUPPC,4,183,TSL,0&&31;
```

```
ZWTP:BCSU,7:PCU,4,9::PCUDSP,4,184,TSL,0&&31:PCUDSP,4,185,TSL,0&&31:PCU
PPC,4,186,TSL,0&&31:PCUPPC,4,187,TSL,0&&31;
```

```
ZWTP:BCSU,8:PCU,4,9::PCUDSP,4,188,TSL,0&&31:PCUDSP,4,189,TSL,0&&31:PCU
PPC,4,190,TSL,0&&31:PCUPPC,4,191,TSL,0&&31;
```

After the PCU hardware has been created, connect the functional unit.

```
ZWUC:BCSU,<index>:PCU,4;
```

DMCT2-S terminators are already installed in the High Capacity BSC2i. Check that terminators are installed. Check that MC1C Interchangeability code is C or D.

## 7.2 BSC2i PCU PCM-Cables, track 9

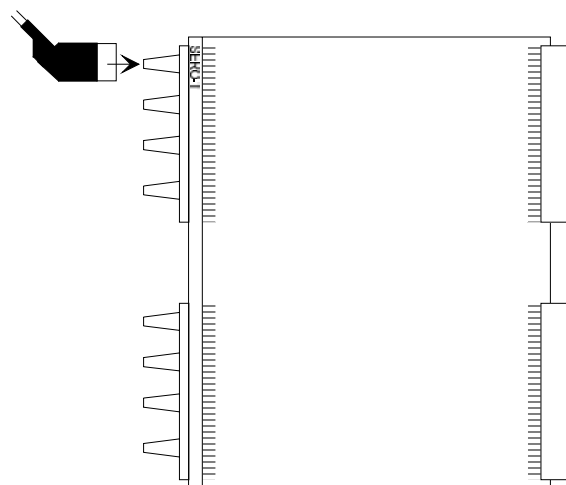
BSC2i PCU PCM-Cables, Cable list for BCBE rack:

No.	Rack	FE	Connector	Rack	FE	Connector	Type	Use
1.100	BCBE	BCSU 0 / PCU	030.27F 09R1	BCBE	SW1C 0	120.01B 04R8	CFN020	PCM
1.101	BCBE	BCSU 0 / PCU	030.27F 09R3	BCBE	SW1C 1	120.19B 04R8	CFN018	PCM
1.102	BCBE	BCSU 1 / PCU	002.01F 09R1	BCBE	SW1C 0	120.01B 04S1	CFN026	PCM
1.103	BCBE	BCSU 1 / PCU	002.01F 09R3	BCBE	SW1C 1	120.19B 04S1	CFN024	PCM
1.104	BCBE	BCSU 2 / PCU	002.27F 09R1	BCBE	SW1C 0	120.01B 04S2	CFN024	PCM
1.105	BCBE	BCSU 2 / PCU	002.27F 09R3	BCBE	SW1C 1	120.19B 04S2	CFN022	PCM

Cable list for BCEE rack:

No.	Rack	FE	Connector	Rack	FE	Connector	Type	Use
2.100	BCEE	BCSU 3 / PCU	088.01F 09R1	BCBE	SW1C 0	120.01B 04S3	CFN016	PCM
2.101	BCEE	BCSU 3 / PCU	088.01F 09R3	BCBE	SW1C 1	120.19B 04S3	CFN014	PCM
2.102	BCEE	BCSU 4 / PCU	088.27F 09R1	BCBE	SW1C 0	120.01B 04S4	CFN018	PCM
2.103	BCEE	BCSU 4 / PCU	088.27F 09R3	BCBE	SW1C 1	120.19B 04S4	CFN016	PCM
2.104	BCEE	BCSU 5 / PCU	058.01F 09R1	BCBE	SW1C 0	120.01B 04S5	CFN024	PCM
2.105	BCEE	BCSU 5 / PCU	058.01F 09R3	BCBE	SW1C 1	120.19B 04S5	CFN022	PCM
2.106	BCEE	BCSU 6 / PCU	058.27F 09R1	BCBE	SW1C 0	120.01B 04S6	CFN022	PCM
2.107	BCEE	BCSU 6 / PCU	058.27F 09R3	BCBE	SW1C 1	120.19B 04S6	CFN020	PCM
2.108	BCEE	BCSU 7 / PCU	030.01F 09R1	BCBE	SW1C 0	120.01B 04S7	CFN028	PCM
2.109	BCEE	BCSU 7 / PCU	030.01F 09R3	BCBE	SW1C 1	120.19B 04S7	CFN026	PCM
2.110	BCEE	BCSU 8 / PCU	030.27F 09R1	BCBE	SW1C 0	120.01B 04S8	CFN026	PCM
2.111	BCEE	BCSU 8 / PCU	030.27F 09R3	BCBE	SW1C 1	120.19B 04S8	CFN024	PCM

¼ EURO Connector is connected to PCU card and 1/8 EURO to the GSWB.



### 7.3 PCU\_S Track 8 PCM Configuration in BSC2i

Install the PCU\_S to BCSU track 8. Connect two internal 4M PCM cables (cables which are coming from the GSWB) to the PCU\_S. See cable lists for details. One PCM is used for the Abis and one for the Gb interface. PCMs will be defined with two plug-in unit functions: **PCUDSP** and **PCUPPC**.

The PCU plug-in unit is created to the EQUIPM database with the following MML-command:

```
ZWTP:BCSU,0:PCU_S,3,8::PCUDSP,4,152,TSL,0&&31:PCUDSP,4,153,TSL,0&&31:P  
CUPPC,4,154,TSL,0&&31:PCUPPC,4,155,TSL,0&&31;
```

```
ZWTP:BCSU,1:PCU_S,3,8::PCUDSP,4,192,TSL,0&&31:PCUDSP,4,193,TSL,0&&31:P  
CUPPC,4,194,TSL,0&&31:PCUPPC,4,195,TSL,0&&31;
```

```
ZWTP:BCSU,2:PCU_S,3,8::PCUDSP,4,196,TSL,0&&31:PCUDSP,4,197,TSL,0&&31:P  
CUPPC,4,198,TSL,0&&31:PCUPPC,4,199,TSL,0&&31;
```

```
ZWTP:BCSU,3:PCU_S,3,8::PCUDSP,4,200,TSL,0&&31:PCUDSP,4,201,TSL,0&&31:P  
CUPPC,4,202,TSL,0&&31:PCUPPC,4,203,TSL,0&&31;
```

```
ZWTP:BCSU,4:PCU_S,3,8::PCUDSP,4,204,TSL,0&&31:PCUDSP,4,205,TSL,0&&31:P  
CUPPC,4,206,TSL,0&&31:PCUPPC,4,207,TSL,0&&31;
```

```
ZWTP:BCSU,5:PCU_S,3,8::PCUDSP,4,208,TSL,0&&31:PCUDSP,4,209,TSL,0&&31:P  
CUPPC,4,210,TSL,0&&31:PCUPPC,4,211,TSL,0&&31;
```

```
ZWTP:BCSU,6:PCU_S,3,8::PCUDSP,4,212,TSL,0&&31:PCUDSP,4,213,TSL,0&&31:P  
CUPPC,4,214,TSL,0&&31:PCUPPC,4,215,TSL,0&&31;
```

```
ZWTP:BCSU,7:PCU_S,3,8::PCUDSP,4,216,TSL,0&&31:PCUDSP,4,217,TSL,0&&31:P  
CUPPC,4,218,TSL,0&&31:PCUPPC,4,219,TSL,0&&31;
```

```
ZWTP:BCSU,8:PCU_S,3,8::PCUDSP,4,220,TSL,0&&31:PCUDSP,4,221,TSL,0&&31:P  
CUPPC,4,222,TSL,0&&31:PCUPPC,4,223,TSL,0&&31;
```

After the PCU hardware has been created, connect the functional unit.

```
ZWUC:BCSU,<index>:PCU_S,3;
```

## 7.4 BSC2i PCU\_S PCM-Cables, Track 8

BSC2i PCU PCM-Cables, Cable list for BCBE rack:

No.	Rack	FE	Connector	Rack	FE	Connector	Type	Use
1.110	BCBE	BCSU 0 / PCU	030.27F 08R1	BCBE	SW1C 0	120.01B 04R7	CFN020	PCM
1.111	BCBE	BCSU 0 / PCU	030.27F 08R3	BCBE	SW1C 1	120.19B 04R7	CFN018	PCM
1.112	BCBE	BCSU 1 / PCU	002.01F 08R1	BCBE	SW1C 0	120.01B 05R1	CFN026	PCM
1.113	BCBE	BCSU 1 / PCU	002.01F 08R3	BCBE	SW1C 1	120.19B 05R1	CFN024	PCM
1.114	BCBE	BCSU 2 / PCU	002.27F 08R1	BCBE	SW1C 0	120.01B 05R2	CFN024	PCM
1.115	BCBE	BCSU 2 / PCU	002.27F 08R3	BCBE	SW1C 1	120.19B 05R2	CFN022	PCM

Cable list for BCEE rack:

No.	Rack	FE	Connector	Rack	FE	Connector	Type	Use
2.120	BCEE	BCSU 3 / PCU	088.01F 08R1	BCBE	SW1C 0	120.01B 05R3	CFN016	PCM
2.121	BCEE	BCSU 3 / PCU	088.01F 08R3	BCBE	SW1C 1	120.19B 05R3	CFN014	PCM
2.122	BCEE	BCSU 4 / PCU	088.27F 08R1	BCBE	SW1C 0	120.01B 05R4	CFN018	PCM
2.123	BCEE	BCSU 4 / PCU	088.27F 08R3	BCBE	SW1C 1	120.19B 05R4	CFN016	PCM
2.124	BCEE	BCSU 5 / PCU	058.01F 08R1	BCBE	SW1C 0	120.01B 05R5	CFN024	PCM
2.125	BCEE	BCSU 5 / PCU	058.01F 08R3	BCBE	SW1C 1	120.19B 05R5	CFN022	PCM
2.126	BCEE	BCSU 6 / PCU	058.27F 08R1	BCBE	SW1C 0	120.01B 05R6	CFN022	PCM
2.127	BCEE	BCSU 6 / PCU	058.27F 08R3	BCBE	SW1C 1	120.19B 05R6	CFN020	PCM
2.128	BCEE	BCSU 7 / PCU	030.01F 08R1	BCBE	SW1C 0	120.01B 05R7	CFN028	PCM
2.129	BCEE	BCSU 7 / PCU	030.01F 08R3	BCBE	SW1C 1	120.19B 05R7	CFN026	PCM
2.130	BCEE	BCSU 8 / PCU	030.27F 08R1	BCBE	SW1C 0	120.01B 05R8	CFN026	PCM
2.131	BCEE	BCSU 8 / PCU	030.27F 08R3	BCBE	SW1C 1	120.19B 05R8	CFN024	PCM

¼ EURO Connector is connected to PCU card and 1/8 EURO to the GSWB.

## 8 DX200 BSC2A and BSC2i ET HW upgrade

Four optional ET5C cartridges can be installed to the bottom of the BSC extension rack. The maximum number of external ET\_PCM is then increased from 80 to 144 PCMs. See figure 1. BSC2A and figure 2. BSC2i.

BSC2As in the field are not necessarily equipped with the bottom shelf (**CS6A-T C23697**) of the BCEE-rack. This shelf is included in the standard configuration in BSC2i. When upgrading the BSC, the bottom shelf is needed for the extra ET5C cartridges. Install the shelf to the rack.

Install ET5C cartridges to the bottom of the BSC's extension rack. Connect the power, PCM, and alarm cables according to the cable list. Set the ET plug-in unit strappings and install ET plug-in units to the ET5 cartridge. Set ET5C cartridge strappings properly.

When installing the cabling, avoid sharp bends and make sure that the cables are not pulled too tight. The BSC may be carrying traffic during the upgrade and, therefore, special care must be taken to avoid disconnecting other cables or connectors.

If the BSC2A is not equipped with an ET5C-4 cartridge (part of the large capacity BSC feature), instructions for installation and creation of ET5C-4 ETs can be found in ***S10.5 Large Capacity feature implementation procedure***.

ET5C-5 and ET5C-6 Cable lists:

No.	Rack	FE	Connector	Rack	FE	Connector	Type	Use
2.70	BCEE	PSFP 2	148.03B P7	BCEE	ET5C 5	002.01B_PL1	CVKT022	POWER
2.71	BCEE	PSFP 3	148.27B P7	BCEE	ET5C 5	002.01B_PL2	CVKT025	POWER
2.72	BCBE	SW1C 0	120.01B 03S7	BCEE	ET5C 5	002.01B 00V1	CEB032	PCM
2.73	BCBE	SW1C 0	120.01B 04R1	BCEE	ET5C 5	002.01B 00V3	CEB033	PCM
2.74	BCBE	SW1C 1	120.19B 03S7	BCEE	ET5C 5	002.01B 00V5	CEB031	PCM
2.75	BCBE	SW1C 1	120.19B 04R1	BCEE	ET5C 5	002.01B 00V7	CEB032	PCM
2.76	BCEE	CLAC	120.01B 04R5	BCEE	ET5C 5	002.01B 04S1	CFB025	AL/CLK 5)
2.77	BCEE	PSFP 2	148.03B P8	BCEE	ET5C 6	002.13B_PL1	CVKT022	POWER
2.78	BCEE	PSFP 3	148.27B P8	BCEE	ET5C 6	002.13B_PL2	CVKT025	POWER
2.79	BCBE	SW1C 0	120.01B 04R3	BCEE	ET5C 6	002.13B 00V1	CEB033	PCM
2.80	BCBE	SW1C 0	120.01B 04R5	BCEE	ET5C 6	002.13B 00V3	CEB033	PCM
2.81	BCBE	SW1C 1	120.19B 04R3	BCEE	ET5C 6	002.13B 00V5	CEB031	PCM
2.82	BCBE	SW1C 1	120.19B 04R5	BCEE	ET5C 6	002.13B 00V7	CEB031	PCM
2.83	BCEE	CLAC	120.01B 03R7	BCEE	ET5C 6	002.13B 04S1	CFB024	AL/CLK 6)

ET5C-7 and ET5C-8 Cable lists:

No.	Rack	FE	Connector	Rack	FE	Connector	Type	Use
2.84	BCEE	PSFP 2	148.03B P9	BCEE	ET5C 7	002.25B_PL1	CVKT025	POWER
2.85	BCEE	PSFP 3	148.27B P9	BCEE	ET5C 7	002.25B_PL2	CVKT022	POWER
2.86	BCBE	SW1C 0	120.01B 05S1	BCEE	ET5C 7	002.25B 00V1	CEB031	PCM
2.87	BCBE	SW1C 0	120.01B 05S3	BCEE	ET5C 7	002.25B 00V3	CEB031	PCM
2.88	BCBE	SW1C 1	120.19B 05S1	BCEE	ET5C 7	002.25B 00V5	CEB029	PCM
2.89	BCBE	SW1C 1	120.19B 05S3	BCEE	ET5C 7	002.25B 00V7	CEB029	PCM
2.90	BCEE	CLAC	120.01B 04S5	BCEE	ET5C 7	002.25B 04S1	CFB023	AL/CLK 13)
2.91	BCEE	PSFP 2	148.03B P10	BCEE	ET5C 8	002.37B_PL1	CVKT025	POWER
2.92	BCEE	PSFP 3	148.27B P10	BCEE	ET5C 8	002.37B_PL2	CVKT022	POWER
2.93	BCBE	SW1C 0	120.01B 05S5	BCEE	ET5C 8	002.37B 00V1	CEB030	PCM
2.94	BCBE	SW1C 0	120.01B 05S7	BCEE	ET5C 8	002.37B 00V3	CEB030	PCM
2.95	BCBE	SW1C 1	120.19B 05S5	BCEE	ET5C 8	002.37B 00V5	CEB028	PCM
2.96	BCBE	SW1C 1	120.19B 05S7	BCEE	ET5C 8	002.37B 00V7	CEB028	PCM
2.97	BCEE	CLAC	120.01B 03S7	BCEE	ET5C 8	002.37B 04S1	CFB022	AL/CLK 14)

Create hardware for ET5Cs:

```
//*****  
// DX 200 BSC2i ***** ET5C-5 *****  
//*****  
// <ET_TYPE> is ET2A
```

```
ZWTC:ET5C,1B002-01:AL=01B120-01-5;  
ZWTU:ET,120:1B002-01;  
ZWTU:ET,121:1B002-01;  
ZWTU:ET,122:1B002-01;  
ZWTU:ET,123:1B002-01;  
ZWTU:ET,124:1B002-01;  
ZWTU:ET,125:1B002-01;  
ZWTU:ET,126:1B002-01;  
ZWTU:ET,127:1B002-01;  
ZWTU:ET,128:1B002-01;  
ZWTU:ET,129:1B002-01;  
ZWTU:ET,130:1B002-01;  
ZWTU:ET,131:1B002-01;  
ZWTU:ET,132:1B002-01;  
ZWTU:ET,133:1B002-01;  
ZWTU:ET,134:1B002-01;  
ZWTU:ET,135:1B002-01;
```

```
ZWTP:ET,120:<ET_TYPE>,0,0::ETT00,4,120,TSL,0;  
ZWTP:ET,121:<ET_TYPE>,0,0::ETT00,4,121,TSL,0;  
ZWTP:ET,122:<ET_TYPE>,0,1::ETT00,4,122,TSL,0;  
ZWTP:ET,123:<ET_TYPE>,0,1::ETT00,4,123,TSL,0;  
ZWTP:ET,124:<ET_TYPE>,0,2::ETT00,4,124,TSL,0;  
ZWTP:ET,125:<ET_TYPE>,0,2::ETT00,4,125,TSL,0;  
ZWTP:ET,126:<ET_TYPE>,0,3::ETT00,4,126,TSL,0;  
ZWTP:ET,127:<ET_TYPE>,0,3::ETT00,4,127,TSL,0;  
ZWTP:ET,128:<ET_TYPE>,0,4::ETT00,4,128,TSL,0;  
ZWTP:ET,129:<ET_TYPE>,0,4::ETT00,4,129,TSL,0;  
ZWTP:ET,130:<ET_TYPE>,0,5::ETT00,4,130,TSL,0;  
ZWTP:ET,131:<ET_TYPE>,0,5::ETT00,4,131,TSL,0;  
ZWTP:ET,132:<ET_TYPE>,0,6::ETT00,4,132,TSL,0;  
ZWTP:ET,133:<ET_TYPE>,0,6::ETT00,4,133,TSL,0;  
ZWTP:ET,134:<ET_TYPE>,0,7::ETT00,4,134,TSL,0;  
ZWTP:ET,135:<ET_TYPE>,0,7::ETT00,4,135,TSL,0;
```

```
//*****  
//          ***** ET5C-6 *****  
//*****
```

In a Next step ET5C-6 cassette is created. Check the hardware and PCM cabeling of ET5C-6 cartridge.

```
ZWTC:ET5C,1B002-13:AL=01B120-01-6;  
ZWTU:ET,136:1B002-13;  
ZWTU:ET,137:1B002-13;  
ZWTU:ET,138:1B002-13;  
ZWTU:ET,139:1B002-13;  
ZWTU:ET,140:1B002-13;  
ZWTU:ET,141:1B002-13;  
ZWTU:ET,142:1B002-13;  
ZWTU:ET,143:1B002-13;  
ZWTU:ET,144:1B002-13;  
ZWTU:ET,145:1B002-13;  
ZWTU:ET,146:1B002-13;  
ZWTU:ET,147:1B002-13;  
ZWTU:ET,148:1B002-13;  
ZWTU:ET,149:1B002-13;  
ZWTU:ET,150:1B002-13;  
ZWTU:ET,151:1B002-13;
```

```
ZWTP:ET,136:<ET_TYPE>,0,0::ETT00,4,136,TSL,0;  
ZWTP:ET,137:<ET_TYPE>,0,0::ETT00,4,137,TSL,0;  
ZWTP:ET,138:<ET_TYPE>,0,1::ETT00,4,138,TSL,0;  
ZWTP:ET,139:<ET_TYPE>,0,1::ETT00,4,139,TSL,0;  
ZWTP:ET,140:<ET_TYPE>,0,2::ETT00,4,140,TSL,0;  
ZWTP:ET,141:<ET_TYPE>,0,2::ETT00,4,141,TSL,0;  
ZWTP:ET,142:<ET_TYPE>,0,3::ETT00,4,142,TSL,0;  
ZWTP:ET,143:<ET_TYPE>,0,3::ETT00,4,143,TSL,0;  
ZWTP:ET,144:<ET_TYPE>,0,4::ETT00,4,144,TSL,0;  
ZWTP:ET,145:<ET_TYPE>,0,4::ETT00,4,145,TSL,0;  
ZWTP:ET,146:<ET_TYPE>,0,5::ETT00,4,146,TSL,0;  
ZWTP:ET,147:<ET_TYPE>,0,5::ETT00,4,147,TSL,0;  
ZWTP:ET,148:<ET_TYPE>,0,6::ETT00,4,148,TSL,0;  
ZWTP:ET,149:<ET_TYPE>,0,6::ETT00,4,149,TSL,0;  
ZWTP:ET,150:<ET_TYPE>,0,7::ETT00,4,150,TSL,0;  
ZWTP:ET,151:<ET_TYPE>,0,7::ETT00,4,151,TSL,0;
```

```
//*****  
//          ***** ET5C-7 *****  
//*****
```

In a Next step ET5C-7 cassette is created. Check the hardware and PCM cabeling of ET5C-7 cartridge.

```
ZWTC:ET5C,1B002-25:AL=01B120-01-13;  
ZWTU:ET,224:1B002-25;  
ZWTU:ET,225:1B002-25;  
ZWTU:ET,226:1B002-25;  
ZWTU:ET,227:1B002-25;  
ZWTU:ET,228:1B002-25;  
ZWTU:ET,229:1B002-25;  
ZWTU:ET,230:1B002-25;  
ZWTU:ET,231:1B002-25;  
ZWTU:ET,232:1B002-25;  
ZWTU:ET,233:1B002-25;  
ZWTU:ET,234:1B002-25;  
ZWTU:ET,235:1B002-25;  
ZWTU:ET,236:1B002-25;  
ZWTU:ET,237:1B002-25;  
ZWTU:ET,238:1B002-25;  
ZWTU:ET,239:1B002-25;
```

```
ZWTP:ET,224:<ET_TYPE>,0,0::ETT00,4,224,TSL,0;  
ZWTP:ET,225:<ET_TYPE>,0,0::ETT00,4,225,TSL,0;  
ZWTP:ET,226:<ET_TYPE>,0,1::ETT00,4,226,TSL,0;  
ZWTP:ET,227:<ET_TYPE>,0,1::ETT00,4,227,TSL,0;  
ZWTP:ET,228:<ET_TYPE>,0,2::ETT00,4,228,TSL,0;  
ZWTP:ET,229:<ET_TYPE>,0,2::ETT00,4,229,TSL,0;  
ZWTP:ET,230:<ET_TYPE>,0,3::ETT00,4,230,TSL,0;  
ZWTP:ET,231:<ET_TYPE>,0,3::ETT00,4,231,TSL,0;  
ZWTP:ET,232:<ET_TYPE>,0,4::ETT00,4,232,TSL,0;  
ZWTP:ET,233:<ET_TYPE>,0,4::ETT00,4,233,TSL,0;  
ZWTP:ET,234:<ET_TYPE>,0,5::ETT00,4,234,TSL,0;  
ZWTP:ET,235:<ET_TYPE>,0,5::ETT00,4,235,TSL,0;  
ZWTP:ET,236:<ET_TYPE>,0,6::ETT00,4,236,TSL,0;  
ZWTP:ET,237:<ET_TYPE>,0,6::ETT00,4,237,TSL,0;  
ZWTP:ET,238:<ET_TYPE>,0,7::ETT00,4,238,TSL,0;  
ZWTP:ET,239:<ET_TYPE>,0,7::ETT00,4,239,TSL,0;
```

```
//*****  
//          ***** ET5C-8 *****  
//*****
```

In Next step ET5C-8 cassette is created. Check the hardware and PCM cabeling of ET5C-8 cartridge.

```
ZWTC:ET5C,1B002-37:AL=01B120-01-14;  
ZWTU:ET,240:1B002-37;  
ZWTU:ET,241:1B002-37;  
ZWTU:ET,242:1B002-37;  
ZWTU:ET,243:1B002-37;  
ZWTU:ET,244:1B002-37;  
ZWTU:ET,245:1B002-37;  
ZWTU:ET,246:1B002-37;  
ZWTU:ET,247:1B002-37;  
ZWTU:ET,248:1B002-37;  
ZWTU:ET,249:1B002-37;  
ZWTU:ET,250:1B002-37;  
ZWTU:ET,251:1B002-37;  
ZWTU:ET,252:1B002-37;  
ZWTU:ET,253:1B002-37;  
ZWTU:ET,254:1B002-37;  
ZWTU:ET,255:1B002-37;
```

```
ZWTP:ET,240:<ET_TYPE>,0,0::ETT00,4,240,TSL,0;  
ZWTP:ET,241:<ET_TYPE>,0,0::ETT00,4,241,TSL,0;  
ZWTP:ET,242:<ET_TYPE>,0,1::ETT00,4,242,TSL,0;  
ZWTP:ET,243:<ET_TYPE>,0,1::ETT00,4,243,TSL,0;  
ZWTP:ET,244:<ET_TYPE>,0,2::ETT00,4,244,TSL,0;  
ZWTP:ET,245:<ET_TYPE>,0,2::ETT00,4,245,TSL,0;  
ZWTP:ET,246:<ET_TYPE>,0,3::ETT00,4,246,TSL,0;  
ZWTP:ET,247:<ET_TYPE>,0,3::ETT00,4,247,TSL,0;  
ZWTP:ET,248:<ET_TYPE>,0,4::ETT00,4,248,TSL,0;  
ZWTP:ET,249:<ET_TYPE>,0,4::ETT00,4,249,TSL,0;  
ZWTP:ET,250:<ET_TYPE>,0,5::ETT00,4,250,TSL,0;  
ZWTP:ET,251:<ET_TYPE>,0,5::ETT00,4,251,TSL,0;  
ZWTP:ET,252:<ET_TYPE>,0,6::ETT00,4,252,TSL,0;  
ZWTP:ET,253:<ET_TYPE>,0,6::ETT00,4,253,TSL,0;  
ZWTP:ET,254:<ET_TYPE>,0,7::ETT00,4,254,TSL,0;  
ZWTP:ET,255:<ET_TYPE>,0,7::ETT00,4,255,TSL,0;
```

## 9 Completion of the Upgrade

### 9.1 Implementation of new optional feature

Once the HW has been upgraded to the required level, the installation continues with the optional feature upgrade. The GPRS/EDGE feature is delivered in a new *Customer-Specific Disk*, which replaces the old diskette in the Release Binders.

Instructions for the installation are given in the S10.5 Feature Installation Manual: *Installation of Optional Features for BSC SW S10.5*. This document is also included in the S10.5 Software Release Binders.

### 9.2 Cartridge Marking Labels

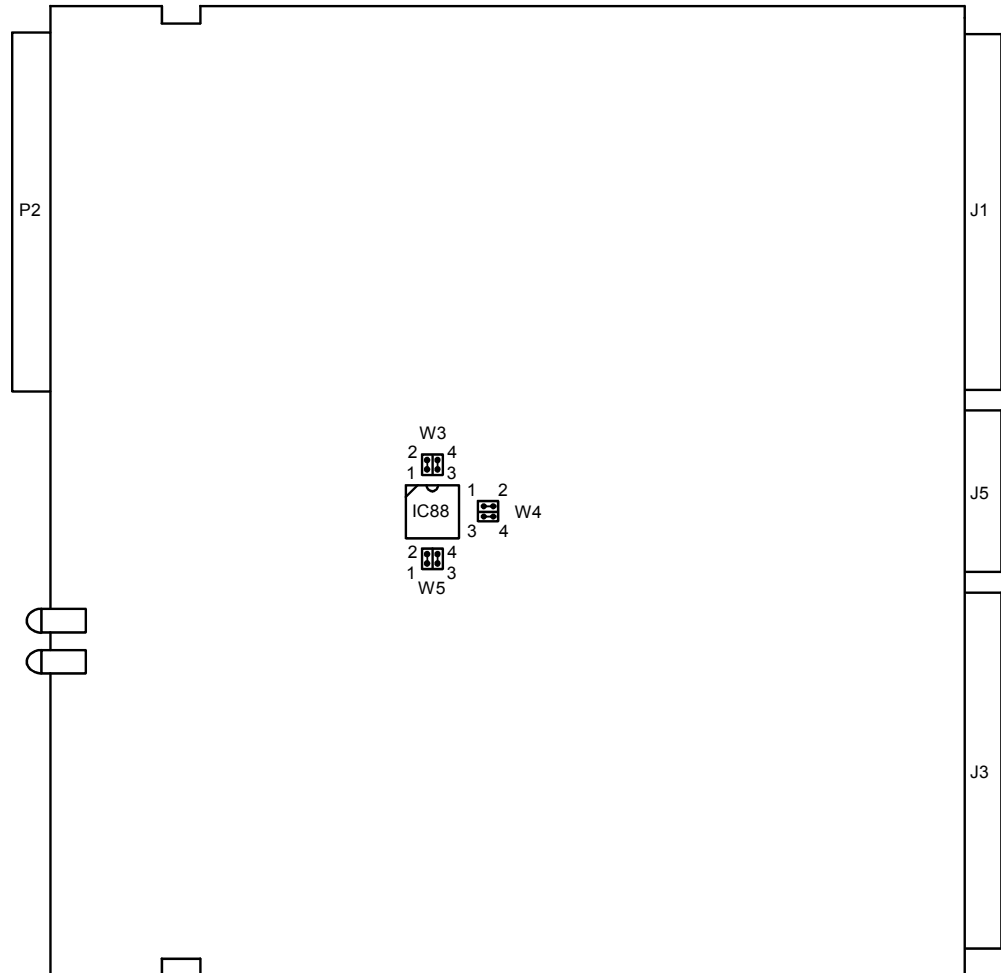
Each BSC cartridge is provided with a marking label, which indicates e.g. the cartridge name, the PCM interface number, functional unit number or plug-in unit names, depending on the cartridge and its function. All marking labels, except for the ET1TC and ET5C cartridge labels, are filled in at the factory.

Due to the multiple plug-in unit configuration and allocation options offered, the labels for the ET1TC and ET5C cartridges have been left partially blank. The only details shown are the name of the cartridge and the positions of the plug-in units. The boxes left blank are to be filled in at the site, in accordance with the equipment configuration installed into each cartridge.

Attach the new cartridge marking labels to the BSC racks. The labels are delivered as a set in a separate bag.

## 10 Appendix, SW64B Jumper settings

SW64B C 8790, jumpers of the plug-in unit:

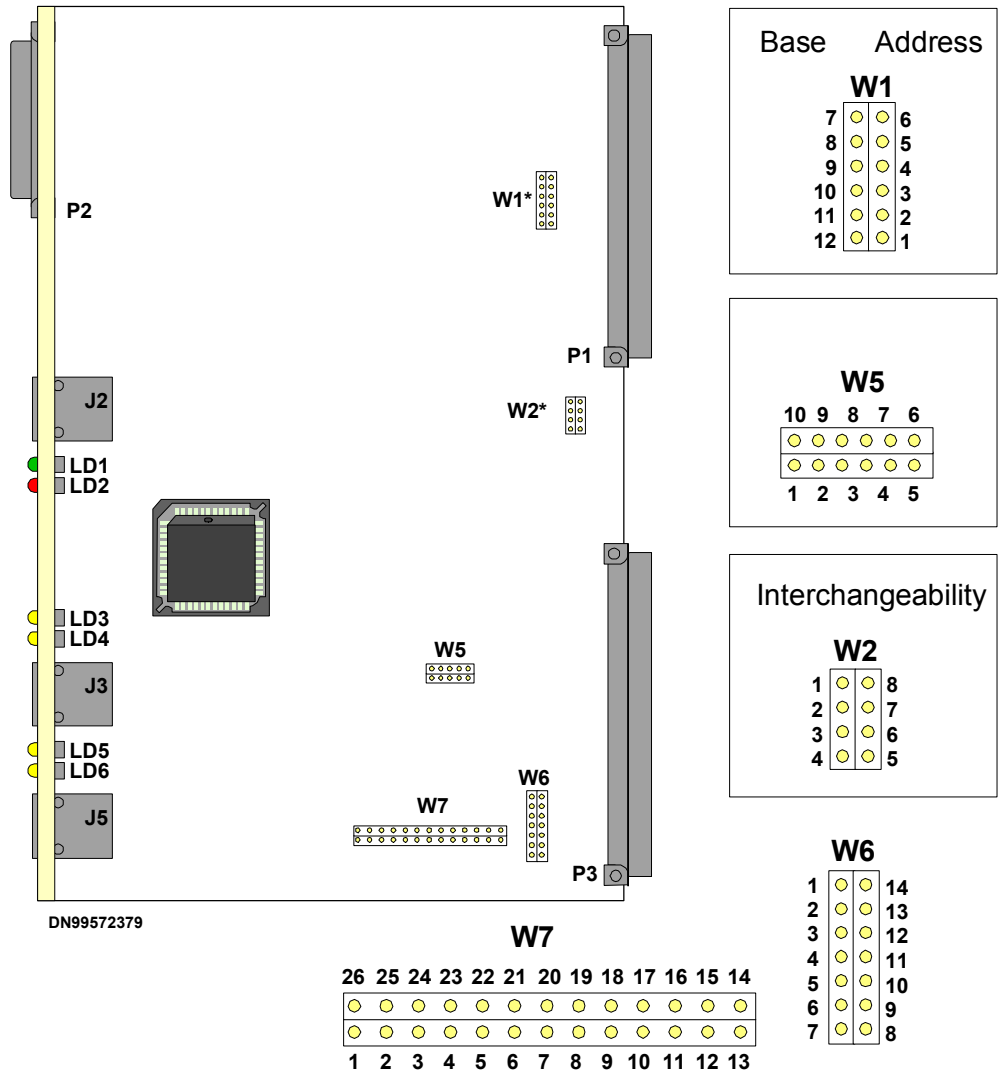


Standard settings:

Jumper block	Connection
W3	1-2 3-4
W4	1-2 3-4
W5	1-2 3-4

## 11 Appendix, PCU and PCU\_S Jumper settings

PCU and new PCU\_S plug-in unit Jumpers settings:



Standard Settings:

Jumper block	Connection
W5	-
W6	-
W7 *	13 - 14

\* Boundary scan test is controlled by the jumper block W7. Jumper in pins 13-14.

### Jumper W2 Interchangeability code setting:

Jumper	Interchangeability Code														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R
W2: 1-8	X	-	X	-	X	-	X	-	X	-	X	-	X	-	X
2-7	X	X	-	-	X	X	-	-	X	X	-	-	X	X	-
3-6	X	X	X	X	-	-	-	-	X	X	X	X	-	-	-
4-5	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-

X = Jumper on

### Jumper W1, Selection of the base address 500 000 H, Track 9:

Jumper block	Jumper	Selection Criteria	Base Address
W1	6-7 5-8 3-10 1-12	BCSU, Track 09 (BSC2A, BSC2i)	500 000H
W1	6-7 5-8 3-10 2-11 1-12	BCSU, Track 08 (2 nd PCU, BSC2i)	400 000H
W1	6-7 5-8 4-9 1-12	BCSU, Track 07 (2 nd PCU, BSC2A)	300 000H

Example, Track 9 / Base address 500 000H:

