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Please note:
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1 Preface

ABB defines Mission-Critical Systems (MCS) as network infrastructures providing critical applications for energy grids, railways, oil and gas pipelines and authorities.

XMC20 is a purpose-built multi-service telecommunication family of network elements. It is designed to meet the stringent access & transport networks requirements for Mission-Critical Systems (MCS).

All services in XMC20 are administered by a central network management system UNEM. The integrated management systems brings maximum synergy through managing all services on one platform. An easy-to-use local craft terminal (ECST) is as well available and fully integrated with the ABB UNEM network management software.

Within the ABB product family existed the XMP1 - it is a modular multi-service access system, designed for usage in dedicated networks. It has a variety of interfaces for providing voice services (e.g. E&M, ISDN telephony), data services (e.g. E1, V/X), Ethernet, video and teleprotection (implementation of the C37.94 protocol).

It has been announced an End of Sales (EoS) for the XMP1 product and hence, promoting the XMC20 to customers who experienced the XMP1. XMC20 is a future-proof product that serves for both TDM and Packet networks.

Due to the large customer base using XMP1 being managed by the Ericsson’s ServiceOnAccess (SOA) NMS, there is a need to integrate the XMC20 under this network management system in order to allow a smooth replacement of XMP1 with XMC20. This will help customers to extend their network with the ABB future-proof full hybrid multi-service access & transport platform for communications networks in mission-critical systems.

The project scope is to map the same XMP1 functions “to the maximum possible extend” from XMC20 into SOA (as all available SOA – XMP1 functions). The SOA XMC20 integration project is hence allowing customers to have the same look and feel when swapping or migrating as well as extending their existent XMP1 network with XMC20.
2 Supported XMC20 Generic Functions - XMC25, XMC23 and XMC22

2.1 Generic XMC20 Inventory

About XMC20 Sub racks:
Sub racks of the hybrid multi-service platform XMC20 for Ethernet with MPLS-TP and legacy services on a single network element. The sub racks of the XMC20 system provide comprehensive multi-service features in compact casings. With XMC20, highly available network nodes are realized to provide data interfaces as well as transport interfaces. This makes the XMC20 ideally fit for mission-critical telecommunication networks in railways/metros, utilities, gas and oil pipeline operators, air traffic management or homeland security.

Supported Features:

- Fully supported in SOA
  - XMC25 (21 slots), XMC23 (8 slots) or XMC22 (4 slots) for different installation types
  - Uplink to transport network with PDH/SDH
  - TDM interfaces in one compact network element
  - Designed for operation in outdoor cabinets
  - Fan
  - Fan-less operation
  - Provision, configuration and monitoring with an intuitive network management system
  - Cross Launch of the XMC20 local craft terminal ECST

- FCAPS (Fault, Configuration, Accounting, Performance, Security)
  - Fault Management: See reference Alarm Mapping
  - Node Inventory Management: According to SOA Software Standards
  - Performance Management: Card specific. (G.826, Layer specific,(SELI8; TUDA1); MIB-2 Ethernet Interfaces, MIB-2 TDM Interfaces (TUDA1); Ethernet Performance Counters (COGE5)
  - Configuration Management
  - Cross connections:
    - PDH layers 64k, 2M
    - SDH layers VC12, VC3, VC4
    - concentrated on central unit COGE5
    - including Protection/ SNCP

- Protection:
  - Equipment protection for the XMC20 central unit COGE5
  - E1 line protection for SELI8
  - Protections are created
  - Save to persistent database in XMC20

- Supported only using Local Craft Terminal (ECST)
  - Ethernet and native
  - Uplink to transport network with n x 10 GbE
- Hot Standby of the core unit with switchover times below 50 ms (The XMC20 embedded software release R6B doesn’t support this feature – hence with higher software releases this feature is available via local craft terminal ECST)
3 Cross Launch of Local Craft Terminal – ECST

Concurrent operation of the ABB XMC20 Local Craft Terminal named ECST and ServiceOn Access towards the same XMC20 Network element is supported. Concurrent configuration work from multiple instances of ECST and ServiceOn Access might lead to unwanted persistent NE configurations. In case ECST is started from ServiceOn Access, ServiceOn restricts the use of ECST to only one instance of ECST per NE. As the NE does support multiple instances of ECST to be connected, there is no blocker for additional ECST instances connected to the NE when this instances were started outside of the control from ServiceOn Access (e.g. locally connected).
## 4 Overview of Supported Cards

<table>
<thead>
<tr>
<th>Card XMC20</th>
<th>Order Code</th>
<th>Card XMP1</th>
<th>Order Code</th>
</tr>
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<tbody>
<tr>
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<td>Central Unit / LCC - Central Unit XMP1</td>
<td>37010573</td>
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<tr>
<td>TUDA1</td>
<td>47900358</td>
<td>DSK Modular+ Submodule V.11, V.24, V.35,..</td>
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<td>TUXA1</td>
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<td>KZU EX(8)</td>
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<td>TUEM1</td>
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<td>KZU FEK (8)</td>
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<td>VF E&amp;M</td>
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<tr>
<td>SELI8</td>
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<td>Port HDB3 (2)</td>
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<td>Port LAN (10BaseT) (2)</td>
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## Branding for FOX615

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<td>SATP8</td>
<td>CEPI1</td>
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</table>
6 Supported XMC20 Cards Features

6.1 COGE5

About this Card:
COGE5 is a core unit for the XMC20 sub-racks, optimized for applications in mission-critical networks. It performs all central functions of the system and data transport for the Ethernet traffic and data synchronization.

Supported Features:
- Fully supported in SOA
  - SISA-0
  - Sync-Eth (Clock synchronization)
  - Eth-Port (No configuration available)
  - BPX 64 kbit (Switching matrix for 64 kbit/s connections)
  - LPX VC12 (Switching matrix for VC12)
  - LPX VC3 (Switching matrix for VC3)
  - HPX VC4 (Switching matrix for VC4)
  - ECST- Cross launch functionality
  - BPX 2Mbit (Switching matrix for 2 Mbit/s connections)
- Partially supported in SOA
  - Core Unit Redundancy support
- Supported only using Local Craft Terminal (ECST)
  - Support of Optical and Electrical Ethernet interfaces
  - MPLS-TP capable for packet switched transport networks
  - ERPS for Protection Switching in Ethernet rings
  - SyncE and IEEE 1588v2 on all Ethernet front ports OSPF Routing for Management
  - ToIP PfM (Profile Management)

6.2 TUDA1

About this Card:
TUDA1 provides different types of data interfaces on one unit, configurable via the network management system. With it you can connect a wide range of data terminal equipment, with different interface types and data rate requirements to only one unit in one slot. This improves subrack space utilization and optimizes your investment.
Supported Features:

- Fully supported in SOA
  - 4 independent configurable serial ports on one single unit
  - Additional Ethernet interface
  - Section protection (SNCP)
  - 1+1 end-to-end path protection
  - Performance monitoring
  - 4 x DATAnx64 Ports for V.35, X.24/V.11, V.24/V.28, RS-485,
  - 1 x DATAnx64 Port for Ethernet (EoPDH)
  - Interface Type (V35, V11, V.24 V28)
  - Transmission Rate 0.6 kbit/s … 1984 kbit/s
  - Partially supported in SOA
  - Configurable as V.35, X.24/V.11, V.24/V.28, RS-485
  - Interface Type (RS485)
  - Transmission Mode Synchronous, Asynchronous, Oversampling
- Supported only using Local Craft Terminal (ECST)
  - Point-to-multipoint and multipoint-to-multipoint connections (centralized and distributed conferencing)
  - 1+1 equipment protection
  - Shared protection ring

6.3 TUXA1

| Order Code: 47900277 | Last tested Firmware: tuxa1_r2b04 | Replaces XMP1 Card: KZU EX (8) – 37010212, KZU SUB (8) - 37010247 |

About this Card:

The POTS FXO unit TUXA1 provides up to 12 FXO ports for the connection of remote applications. Its wide range of configurable parameters ensure easy and reliable interoperation with a large variety of exchanges. With the multi-service capabilities of XMC20, TUXA1 signaling and voice data can be transmitted via PDH, SDH or Ethernet. CLIP is supported.

Supported Features:

- Fully supported in SOA
  - 12-port FXO 2-wire ports for the connection of remote subscriber
  - DTMF and pulse dialing
  - Supports 1+1 path protection
  - Configurable voice levels
  - Partially supported in SOA
  - Configurable line impedance
- Supported only using Local Craft Terminal (ECST)
  - Configurable signaling Bits
6.4 SUPM1

Order Code: 47900404  Last tested Firmware: supm1_r2b03
Replaces XMP1: KZU OSX (4) - 37010239

About this Card:

The PSTN line card SUPM1 supports 16 ports for traditional POTS services. Its wide range of configurable modes ensure interoperability with a large variety of exchange protocols. CLIP is supported. Extended voltage protection for dedicated networks.

Supported Features:

- Fully supported in SOA
  - 16-port FXS 2-wire interfaces unit
  - DTMF and pulse dialing
  - 1+1 path protection supported
  - POTS (Port configuration (input and output levels, line test, user port states, admin state)
    - Partially supported in SOA
    - line test
- Partially supported in SOA
  - Built-in maintenance functions for network debugging
- Supported only using Local Craft Terminal (ECST)
  - input and output levels
  - Extended line test functions

6.5 TUEM1

Order Code: 47900269  Last tested Firmware: tuem1_r2c02
Replaces XMP1 Card: KZU FEK (8) – 37010220, VF E&M 37010662

About this Card:

TUEM1 integrates traditional services in the XMC20 platform. Important functions for dedicated networks such as E&M voice telephony and conferencing can be offered with TUEM1 in only one unit. Thanks to the access to the XMC20 hybrid Ethernet-TDM backplane, services offered with TUEM1 can be transmitted via all transport network technologies. For that XMC20 offers interfaces towards PDH, SDH and Ethernet/IP networks. E&M enables different topologies.

Supported Features:

- Fully supported in SOA
  - 8 x 2- or 4-wire E&M V/F interfaces
  - 1+1 path protection supported
  - M Signaling inversion
    - Partially supported in SOA
  - Built-in maintenance functions for network debugging
- Supported only using Local Craft Terminal (ECST)
  - Scalable conferencing on board for 32 participants per unit and 10 parties
6.6 SELI8

About this Card:

SELI8 provides XMC20 with interfaces towards a TDM network and the capability to provision TDM services on the PTN platform. SELI8 provides the uplink for TDM voice and data services via E1 links. Simultaneous coexistence of Ethernet and TDM uplink allows for an easy migration to PTN services whilst maintaining some of the current TDM services. SELI8 works in conjunction with the SDSL8 and SUPM1/SUPM2 units, TDM SHDSL and voice services respectively.

Supported Features:

- Fully supported in SOA
  - 8 x E1 interfaces G.703/G.704
  - Access to TDM bus in XMC20
  - Uplink of MCAS voice
  - Uplink of TDM SHDSL data traffic
  - Configure structured and unstructured mode

6.7 TUGE1

About this Card:

TUGE1 integrates 64 kbps interfaces in the XMC20 platform. Thus, 64 kbps data devices, such as routers and teleprotection terminals, that are in line with the standard can be connected. With TUGE1 the in dedicated networks common TDM services can be supplied furthermore via the IP-based XMC20 platform. Fan-less operation possible.

The TUGE1 data can be switched with other 64 kbps services in XMC20 and multiplexed to higher TDM hierarchical levels.

For XMC25 and 23

Supported Features:

- Fully supported in SOA
  - 8 x 64 kbps for data interfaces in line with ITU-T G.703
  - Interoperable with -- UMUX GECOD units -- XMP1 sub-module G.703, co directional
  - Supports LTP and SNCP/I redundancy functions

6.8 ETAG1

Order Code: 47900242  Last tested Firmware: etag1_r2c02  Replaces XMP1 Card: PORT LANX(8) - PLAN8 – 37010689 - Port LAN (10BaseT) (2) - 37010336

Order Code: 47900560  Last tested Firmware: tuge1_r1c03  Replaces XMP1 Card: Sub-module G.703(2), Co-direct. 37014153

Order Code: 47900129  Last tested Firmware: seli8_rSa04_01  Replaces XMP1 Card: Port HDB3 (2) – 37010301, Port HDB3 (4) – 37010310, PORT 2M (64) – 37010581, PORT 2M (32) - 37010590
About this Card:

With its advanced architecture, XMC20 fulfills the growing demands on Ethernet services in dedicated networks. Additionally, native TDM services and transport solutions can be provided with XMC20 thanks to its Ethernet-TDM hybrid backplane. The TDM capabilities include aggregation and transport of Ethernet data via SDH/PDH networks. Thus, networks operators can serve both networks structures with one platform and one management system.

- For all XMC20 sub racks
- Designed for indoor and outdoor deployment

Supported Features:

- Fully supported in SOA
  - Port configurations: (Auto-negotiation - Half / Full Duplex)
- Supported only using Local Craft Terminal (ECST)
  - PPP and HDLC termination/ encapsulation
  - Aggregation of n x 2 Mbps channels using MLPPP
  - Layer 2 and Layer 3 based packet forwarding
  - Multiple VLAN aware switch instances

6.9 NUSA1

| Order Code: 47900579 | Last tested Firmware: nusa1_r3b17 | Replaces XMP1 Card: SCU (SDH Unit) – 37010450, EoSCU (Ethernet over SDH) – 37010166, EoSCU2 – 37010719, PORT STM (4) POSTM – 37010654, PORT L2 POL2 - 37010638 |

About this Card:

The XMC20 SDH STM-16 unit NUSA1 offers the ability to transport TDM and Ethernet services via SDH STM-16, STM-4, or STM-1 from the XMC20 platform. NUSA1 enables the smooth migration from SDH networks to pure Ethernet networks in one subrack. NUSA1 also allows the coexistence of both types of transport technologies simultaneously. Fanless operation possible.

Supported Features:

- Fully supported in SOA
  - Interfaces
  - 2 x SDH STM-16/STM-4
  - 2 x SDH STM-4/STM-1
  - 4 x 10/100/1000BaseT
  - PDH/SDH mapping / de-mapping for
  - 2 Mbps unframed
  - 2 Mbps framed
  - n x 64 kbps
  - 1+1 equipment protection
  - SDH/PDH protection (SNCP)
- Supported only using Local Craft Terminal (ECST)
  - Ethernet-over-SDH (EoS)
- Layer 2 switching
- ERPS for protection switching in Ethernet/SDH-rings
- SDH/PDH protection (MSP)

### 6.10 NUSA2

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<tbody>
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</tbody>
</table>

**About this Card:**

The XMC20 NUSA2 offers the ability to transport TDM and Ethernet services via SDH STM-16, STM-4, or STM-1 from the XMC20 platform. NUSA2 enables the smooth migration from SDH networks to pure Ethernet networks in one sub rack. NUSA2 also allows the coexistence of both types of transport technologies simultaneously.

**Supported Features:**

- Fully supported in SOA
  - Interfaces
  - 2 x SDH STM-16/STM-4
  - 2 x SDH STM-4/STM-1
  - 4 x 10/100/1000BaseT
  - 48 x E1 front interfaces
  - PDH/SDH mapping/de-mapping for
    - 2 Mbps unframed
    - 2 Mbps framed
  - n x 64 kbps
  - SDH/PDH protection (SNCP)
  - 1+1 equipment protection including E1 front interfaces
  - CC handling (64k, 2M, VC-12, VC-3, VC-4, SNCP: 1:1 uni/bidir. Revertive / Non revertive)
- Supported only using Local Craft Terminal (ECST)
  - Layer-2 switching
  - ERPS for protection switching in Ethernet/SDH rings
  - SDH/PDH protection (MSP)

### 6.11 COOL4/6/8

<table>
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<tbody>
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</table>

**About this Card:**

- Inventory supported
- Alarming supported
6.12 ETO12

About this Card:
The Ethernet unit ETO12 provides 12 Ethernet interfaces for optical or electrical SFP modules. A wide range of SFP modules is supported to allow customization of the interfaces with 100 Mbps or 1,000 Mbps transmission capacity. The support of SFPs means that CAPEX investment is required only as you grow and not in a single lump sum initial investment.

Supported Features:
- Fully supported in SOA
  - Alarms, Inventory data
- Supported only using Local Craft Terminal (ECST)
  - Please review the product datasheet

6.13 ETE24

About this Card:
The ETE24 Ethernet unit provides 24 electrical Gigabit Ethernet interfaces with comprehensive features and high standards for applications that require a reliable data transmission. The ETE24 may be used for various services as LAN interconnection or voice, and video transmission.

Supported Features:
- Fully supported in SOA
  - Alarms, Inventory data
- Supported only using Local Craft Terminal (ECST)
  - Please review the product datasheet

6.14 ISDN4

Supported Features:
- Fully supported in SOA
  - Alarms, Inventory data
- Supported only using Local Craft Terminal (ECST)
  - Please review the product datasheet
6.15 SUSE2

Supported Features:
• Fully supported in SOA
  - Alarms, Inventory data
• Supported only using Local Craft Terminal (ECST)
  - Please review the product datasheet

6.16 SDSL8

Supported Features:
• Fully supported in SOA
  - Alarms, Inventory data
• Supported only using Local Craft Terminal (ECST)
  - Please review the product datasheet

6.17 SATP8

About this Card:
Despite the transition of many core networks to Ethernet/IP, legacy data interfaces are not losing their importance. Many applications will demand E1 interfaces further on, in order to continue to use the already installed equipment. Network operators wanting to save costs with an All-IP network must be able to distribute these legacy interfaces via Ethernet/IP.

This service unit provides
• 8 x E1 interfaces
• CES with up to 8 x 2 Mbps Pseudo Wires
• Highly-accurate and stable clock recovery according to ITU-T G.823
• Precise and steady “hold-over” clock
• Designed for indoor and outdoor deployment
• All functions out of one network management system
• Compatible with PacketBand units
Prerequisites and Conditions

1. SOA Software release 16.2 (for license please contact your Ericsson Sales responsible)
2. XMC20 with embedded software release R6B provided by ABB
3. SOA XMC20 device driver license provided from ABB (for license please contact your ABB Sales responsible)

Please note:
SoA XMC20 device driver has been officially tested on SoA release 16.2 for XMC20 release R6B – however some basic tests has been done for SoA release 17.1 and for XMC20 release R4D, R6C and R6D without showing issues.
# Datasheet

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For more details please contact your ABB Sales responsible. Document Author – Yasser Yassin, Product manager – ABB Switzerland