

S5 Scalable Service Platform



CORECESS introduces new generation of scalable, flexible and highly integrated platform that combines broadband access and access aggregation with high-density fiber and copper connectivity in the same chassis. The S5, a full IP-packet based platform, is seamlessly integrated with legacy broadband network while providing a bridge to future service oriented broadband network.

The S5 platform combines scalability and flexibility with enough density and robust functionalities to fully enable the transformation of current access network to next generation broadband service network. It supports any service requirements in any broadband network, delivering bandwidth and intelligence to create new horizon of broadband services. S5 platform's flexible architecture allows support for both optical and electrical broadband access media that enables seamless migration from copper to fiber.

The highly integrated S5 platform simplifies access network by consolidating multiple functions into a single scalable platform. Its packaging, performance, flexibility and reliability allow economical replacements of one or any combinations of DSLAMs, VoIP GWs, Ethernet Aggregation Switches, PON OLTs and/or Edge Routers. Additionally, the S5 platform deploys advanced packet processing engine that integrates per-flow service control capability to offer more accurate service control and extensive subscriber management, while providing efficient packet uplink to provider's IP/MPLS core network.

The S5 platform is primarily designed for environmentally controlled Central Office deployment, but selected components are temperature hardened to be the entry for partly controlled office or remote terminal¹⁾

• Solution for Fiber Access

Growing demands for more bandwidth requires fiber deployment closer to the subscribers. Answering this challenge, the S5 platform is designed to be capable of introducing more fiber transport capabilities in a cost effective manner. Additionally, highly modular and scalable architecture of S5 platform allows easy migration of every loop from copper to fiber.

As an integration platform, the S5 platform provides broadband access to DSL or FTTH subscribers, while at the same time aggregates service traffics from access nodes through standard compliant high speed fiber transport. The S5 platform supports optical Ethernet and PON interfaces for backhauling fiber based second mile network and simultaneously supports packet based multi-copper pair bonding to provide a low-cost backhaul alternative through abundant copper infrastructures²⁾.

• Broadband Service Migration

The S5 platform is built on CORECESS' field proven IP DSLAM technology with additional components for the support of optical

interfaces. The S5 platform support state-of-the-art DSL technology that is backward compatible to legacy DSL technologies. With the extensive set of access technologies, the S5 platform presents migration path from legacy ADSL to VDSL2 with an ultimate goal of FTTH. All new technologies can be easily added to the S5 platform by plugging-in new interface blades and upgrading system OS without any interruption or degrade to current system operation.

• Massive Broadband Service Interface Density

The S5 platform supports dense optical and copper service interfaces in a scalable platform. Service interface blades can be deployed in any slot to provide services ranging from several Mbps to 1Gbps.

The S5 platform comes in three configurations of S518 - 18 slots in 12RU height chassis -, S510-10 slots in 6RU height chassis - and S505 - 5 slots in 3RU height chassis. Having 64Gbps backplane capacity³⁾, S5 platform provides dedicated duplex 8Gbps bandwidth to each universal slot⁴⁾. Three S518 shelves can be housed in a 7-foot rack to deliver more than 2,300 metallic connections for any types of DSL technologies of ADSL2+, SHDSL and VDSL2. In typical applications, a single S518 can drop 768 DSL lines or 768 VoIP lines or 64 Gigabit PON lines from 4 protected 1Gbps or 2 protected 10Gbps Ethernet uplink⁵⁾.

• Scalable and Upgradeable Platform

The S5 platform scales from entry level S505 to dense S518 in its platform line-up. Additionally, combined with other CORECESS access platforms, its scalability is further extended down from 24 subscribers up to several hundreds subscribers in a single shelf to provide end-to-end solution for deployment anywhere in the network including Central Offices or Remote Terminals.

Highly scaleable nature of the S5 platform gives favor of upgrading service offerings without additional investments in operation and management. Once trained and experienced to the S5 platform, no additional training or integration effort is required. Two levels of upgrade are provided for the S5 platform : Capacity and Functionality. The capacity of the S5 platform is expanded by replacing SCM having bigger switching capability. No replacements or upgrades for the platform chassis are required. Upgrading system OS or plug-in special purpose blades enables easy upgrade in platform functionalities without any service interruption.

• Multi-service Capability

The S5 platform provides wide choices of subscriber services: high density ADSL2+, SHDSL and VDSL2, VoIP with DSL, Gigabit Ethernet and Gigabit EPON. With universal slot concept of plug-in copper or optical service blades in any slot, the S5 platform provides seamless migration to FTTH in the same chassis used for today's metallic service deployment.

Multi-service node can not come with versatility of interface alone. It must be accompanied with excellence in packet processing to deliver service. Highly modular nature of the S5 platform allows wide options for switching blade. From entry level simple layer 2 device to IP service aware multi-layer device⁶⁾, S5 platform provides wide options for service environment.

• Flexible Network Deployment

The S5 platform provides flexible role out configuration of service network from low density to mid-and high density under the same management and provisioning. This flexibility is further extended by cascading or aggregating multiple R1 or R5 products deployed at remote area. The S5 platform also includes a versatile set of uplink interfaces that can span uplink bandwidth from 1Gbps to 10Gbps in a form of redundant point-to-point or ring configuration to give maximum reliability.

• Element Management System (EMS)

The ViewlinX EMS is used to provision and manage services of the entire S5 and associated R5 and R1 network. The ViewlinX EMS provides FCAPS functionality, a scalable architecture to support multiple nodes and north bound interface for existing OSS or NMS platform. An easy-to-use, GUI based ViewlinX EMS enables rapid service activation without the need for costly truck rolls.

1) For extended temperature support, please contact CORECESS sales representatives for availability.

2) Contact CORECESS sales representatives for availability of copper-bonding interface.

3) 64Gbps backplane is valid for S518, S510 and their variations. S505 and its variations have 32Gbps backplane.

4) This is maximum capacity. Actual platform capacity depends on a combination of switching and service interface blades.

5) 10Gbps uplink may not be supported in some chassis and switching blade. Contact CORECESS sales representatives for support and availability.

6) Please contact CORECESS sales representative for availability of switchin and service interface blades

S5 Platform Key Features

Future broadband capable platform of 64Gbps backplane capacity and 8Gbps slot capacity

Non-blocking architecture

Support for multiple sets of broadband service interfaces

- Metallic broadband over Copper : ADSL2+, SHDSL, VDSL2 and copper Ethernet
- Optical broadband over Fiber : Optical Ethernet and PON
- VoIP gateway⁷⁾

Ready for service expansion

- Scalable platform having full line-up from low- to high-density chassis
- Fully replaceable and hot swappable blade support
- Uplink ranging from several Mbps to 10Gbps

Complete end-to-end access solution with other CORECESS access products

Easy and flexible deployment

- Multiple topology support of star, ring or tree
- Fully front access support
- Configuration back-up to non-volatile memory
- Standard compliant platform form-factor

Packet processing functionalities for IP-based “Triple Play Service” delivery

- Robust QoS capabilities through deep multi-packet classification, multiple priority queue support, congestion control, traffic shaping & policing and modification
- Extensive multicast support through full IGMP and multicast routing support
- IP routing and VLAN processing capabilities
- ACL based filtering support
- DHCP server and relay support
- Link aggregation or redundancy support

Management features

- ViewlinX EMS support
- In-band and out-band management support
- Remote monitoring and system OS upgrade support
- Multi-level security enforcements and authentication for administrative log-in

S5 Platform Components

The S5 platform consists of three components : Platform Chassis, Switching & Control Module (SCM) and Line Interface Module (LIM). Platform chassis includes system shelf, fan and power supplies. SCM has switching and control processor inside with which it performs data processing and system management. LIM provides service interface to subscribers. The S5 platform has several types of LIMs according to the interface technology, number of ports, supported media and its functionalities.

S5 Platform Uplink Network Interface

S5 platform’s network interface to service provider’s core network is primarily provided by SCM as built-in type. The type of interface, number of ports and redundancy features are different for each SCM. For some applications, however, additional slots may be occupied for uplink. The S5 platform supports Double Bandwidth(DB) mode for this purpose.

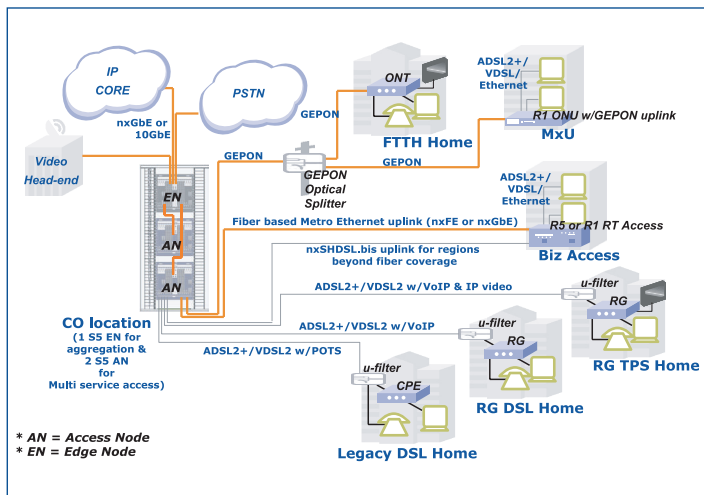
This DB mode operation is very special in that it can support double bandwidth of normal slot and redundancy operation. These slots, when not in use in DB mode, are set as normal in default. The configuration of DB mode must be set before system operation for proper operation.

S5 Platform Operating Environmental Characteristics

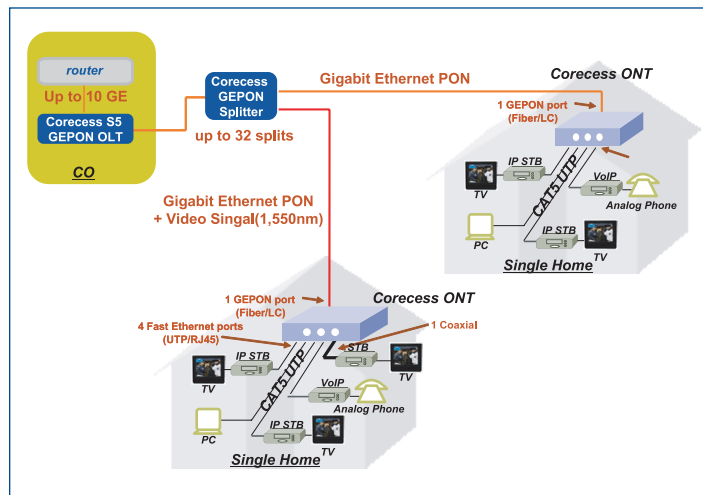
- Operating Temperature ⇒ 0 °C to 50 °C (Default)
- Operating Humidity ⇒ 10~95%@40 °C, Non-condensing

⁷⁾ Contact CORECESS sales representative for details on availability and features of VoIP GateWay

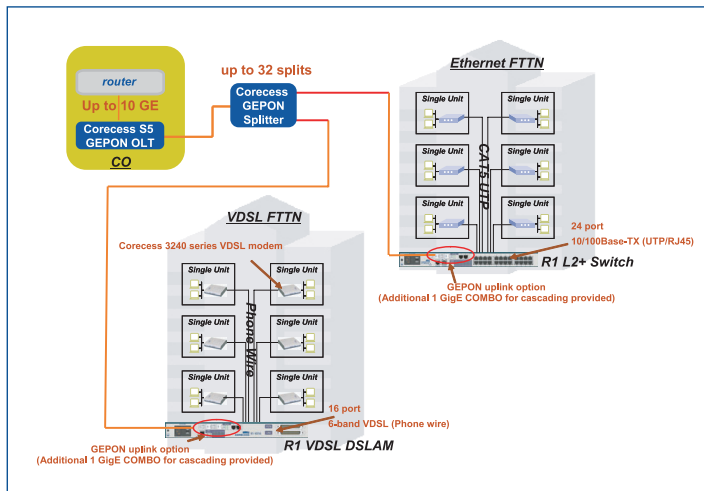
S5 Platform Key Applications



S5 plays access node and access aggregation node at central office being collaborated with R1 and R5 products which are deployed in remote terminal.



Fiber To The Home (FTTH) in single home environment is shown in the figure above. S5 platform roles EPON OLT in this application case and is connected to Corecess 3800 series gigabit single home ONTs. Video overlay is also shown⁸⁾.



Fiber To The Building (FTTB) case with R1 VDSL and Ethernet switch for inside-building connectivity is shown.

8) Contact CORECESS sales representatives for availability and features of video overlaid PON application.

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