

ETS Technologies' ETS3200

Open SoC Platform Architecture

Guided by the vision of Metrozone deployments, we are developing mobile SoC platforms to enable the systematic deployment of multi-gigabit metropolitan radio access networks (RANs), based on ultra-compact, high-performance products.

- Metrozone = Mobile Access + Backhaul

The related SoC design goal is to facilitate single-chip product designs – integrating all required signal, network and control processing subsystems into a carrier-class, multi-core SoC architecture. The benefits of this scalable product architecture are numerous, and the resulting flexibility and cost synergies for vendors' development and manufacturing cycles are legend.

» Unified Mobile Backhaul with multi-gigabit Performance

The ETS3200 4G SoC Platform is ETS Technologies Networks' next-generation product family, delivering full duplex throughput of up to 1.4 Gbps in flexible backhaul applications.

We have created a unified SW solution that delivers multi-gigabit performance in all spectrum bands usable for mobile backhaul - including sub-6 GHz spectrum for high capacity NLOS backhaul and LTE relay, 6-42 GHz Microwave spectrum for long-range LOS links, as well as 60-90 GHz spectrum for short range LOS links, e.g. E-band.

Utilizing a compact and cost-efficient single-SoC system HW design, ETS Technologies Networks is the first silicon vendor to offer a *unified HW and SW solution for all mobile backhaul applications* - with support for point-to-point (PtP) and point-to-multi-point (PtMP) topologies, as well as low-delay, multi-hop relay capability supporting an arbitrary combination of any of the above mentioned spectrum bands, link types and network topology options.

This cost-effective and flexible SoC-based system solution is the ideal platform for a complete multi-stage Metrozone service aggregation and backhaul solution - comprised of long-haul, short-haul, and small cell aggregation, each stage with a flexible network topology.

But the ETS3200 SoC platform is also the best-of-breed development platform for the next generation of traditional Microwave and E-band backhaul products. See the enclosed slide deck for an introduction to our innovative unified backhaul approach.

» High-Capacity, Non-Line-Of-Sight (NLOS) Relay and Backhaul

To complete our vision - high-capacity Metrozones comprised of many Access Points - it is necessary to facilitate the use of new deployment sites, such as building sides, lamp posts, traffic lights, etc. pp...

Access Points deployed in these sites need to be connected to the service layer of the mobile network via high-capacity, low-cost backhaul facilities - without the overhead of timely and costly site

construction and installation permits. This cannot be achieved based on wire line connectivity, no matter what type of wire line infrastructure might be accessible to the operator. In order to facilitate scalable and systematic deployments, only SLA-grade wireless solutions can be considered, with the added requirements of low cost, easy and automated installation - and excellent NLOS performance. Traditional backhaul technology - be that wired or wireless - simply cannot fulfill these critical requirements.

Hence, ETS Technologies has developed patented solutions for low-cost backhaul of compact Metrozone Access Points - most notably delivering the highest spectral efficiency and robust NLOS performance, when used in licensed sub-6 GHz spectrum.

ETS Technologies Networks' NLOS backhaul solutions are SW applications, built with the option in mind to easily integrate with the service access layer - in form of fully integrated single-SoC Metrozone Access Points with embedded self-backhaul or standards-compliant LTE relay capability.

» Auto-Deployment Tools and in-band Link Control Plane

ETS Technologies' NLOS PtP and PtMP backhaul solutions are master/slave applications - with a single point of provisioning and decision making (master). Each backhaul link provides the capability of an in-band link control plane - facilitating end-to-end control of initial deployment configuration parameters, as well as the central operation of adaptive link level parameters. The master unit - termed Feeder - connects upstream towards the service and provisioning layer of the network. The slave unit - termed Remote - provides capacity and network timing services to downstream equipment, such as base stations or multi-hop backhaul links.

At installation time, each Remote unit boots up in PtMP client mode, performing patented network identification, authentication and neighborhood scanning processes - automatically connecting to the provisioning system through an auto-detected Feeder. At this time, the unit will share with the provisioning system the results of the neighborhood scan, and the provisioning system will assign primary and secondary master/slave relationships accordingly, as well as other initial configuration data. Subsequently, the Remote re-synchronizes and registers with the designated master Feeder, to automatically establish initial backhaul link operation.

This process eliminates installation side configuration or radio planning tasks - and applies for PtP as well as PtMP configurations - a key requirement for rapid Metrozone deployments. Similar to self-organized network (SON) management tools, the ongoing link operation will then be automatically controlled by the master via in-band link control - determining the end-to-end link behavior, such as up-/downlink capacity, radio & transmission parameters (AGC, ATPC, AMC, ...), and related QoS service class information. Remote units autonomously derive timing synchronization from the backhaul radio link, providing exact network timing to multi-hop links or adjacent base station equipment.

HDP:an