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ATLAS LAr Phase II upgrade of the Front End Electronics

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The Phase II upgrade of the ATLAS Liquid Argon detector includes a 17 bit dynamic range front end amplifier with a two or three gain multi-pole shaper employing CR-(RC)ⁿ shaping. Each gain stage of the shaper will be followed by a 40Msps, 14b dynamic range, 12-13b ENOB digitizer, serializer and fiber optic driver. A study is underway to see if a single technology (65nm or 130nm CMOS) will be suitable for all blocks up to the optical Link, enabling consideration of the development a Front End System On a Chip (FESOC).

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