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Development and Performance of the CMS Phase-I Pixel DAQ in 2018

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The CMS Phase-I Pixel detector DAQ system relies on custom and standard microTCA parts. The combination of the robust online software and firmware development during 2018 operation made it possible towards a smooth and efficient data taking for the Pixel detector. We developed several complex software techniques to deal with the regular data-taking problems as they appeared. A significant improvement was brought in by a new firmware for Pixel Front-End Controller (PixelFEC) which drastically reduced Pixel configuration time and contributed towards a faster and more complete recovery from detected soft errors during physics runs. We discuss here the CMS Phase-I Pixel DAQ system, its performance and operational experience during 2018.

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