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Introduction

WP3 Electrical interfaces



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Overview of WP3 Electrical Interfaces

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Work break-down structure

Work package (WP) description:

- Inner Barrel:
 - wire-bonding of bent sensors to FPC, incl. tooling;
 - FPC from end of bent sensors to readout boards;
- Outer Barrel and Disks:
 - wire-bonding of sensor to FPC, incl. tooling;
 - FPC from sensors to end of stave/disks;
 - FPC from end of stave/disks to readout boards;

WP3 started in Sept.2023



WP3: Electrical interfaces	
3.1	Hybrid integrated circuits (HICs) for IB, OB and disks
3.1.1	IB HIC (L0-2)
3.1.1.1	Specifications of IB HICs (flexible printed circuits (FPCs), mechanical tools)
3.1.1.2	Design of FPCs and mechanical tools
3.1.1.3	Suppliers evaluation and procurement
3.1.1.4	Prototyping, including testing
3.1.1.5	Iterative improvements of HIC design & assembly techniques
3.1.1.6	Pre-production, including testing
3.1.1.7	Production of detector grade HIC, including QC
3.1.2	OB HIC (L3-4)
3.1.2.1	Specifications of OB HIC (flexible printed circuits (FPCs), mechanical tools)
3.1.2.2	Design of FPCs and mechanical tools
3.1.2.3	Suppliers evaluation and procurement
3.1.2.4	Prototyping, including testing
3.1.2.5	Iterative improvements of HIC design & assembly techniques
3.1.2.6	Pre-production, including testing
3.1.2.7	Production of detector grade HICs, including QC
3.1.3	Disks HIC (ED0-4, HD0-4)
3.1.3.1	Specifications of ED/HD HICs (flexible printed circuits (FPCs), mechanical tools)
3.1.3.2	Design of FPCs and mechanical tools
3.1.3.3	Suppliers evaluation and procurement
3.1.3.4	Prototyping, including testing
3.1.3.5	Iterative improvements of HIC design & assembly techniques
3.1.3.6	Pre-production, including testing
3.1.3.7	Production of detector grade HICs, including QC



WP3 FPC production

- Institutes involved/interested:
 - IB: STFC + (???)
 - OB: STFC + Oxford
 - Disks: BNL + LANL + LBNL
- Suppliers under evaluation:
 - RPE LTU (Ukraine); [Prototyping in progress]
 - Omni Circuit Boards (Canada); [Prototyping in progress]
 - Q-Flex Inc (USA)
- Discussions on interconnection technology, started;
- LBNL (N.Apadula), STFC (F.Wilson) assessed and estimated interconnection capabilities;