

# IST(in-system test)

是用于车规级等安全性要求比较高的芯片场景。

主要是IST可以支持产生JTAG信号，用于在线控制logic bist & memory bist等。

其中如果为了加速memory bist, 可以使用BAP的DirectAccess 来控制（这块与IST产生的JTAG接口没有关系）。

Figure 1. Initial Design for Automotive Test Case

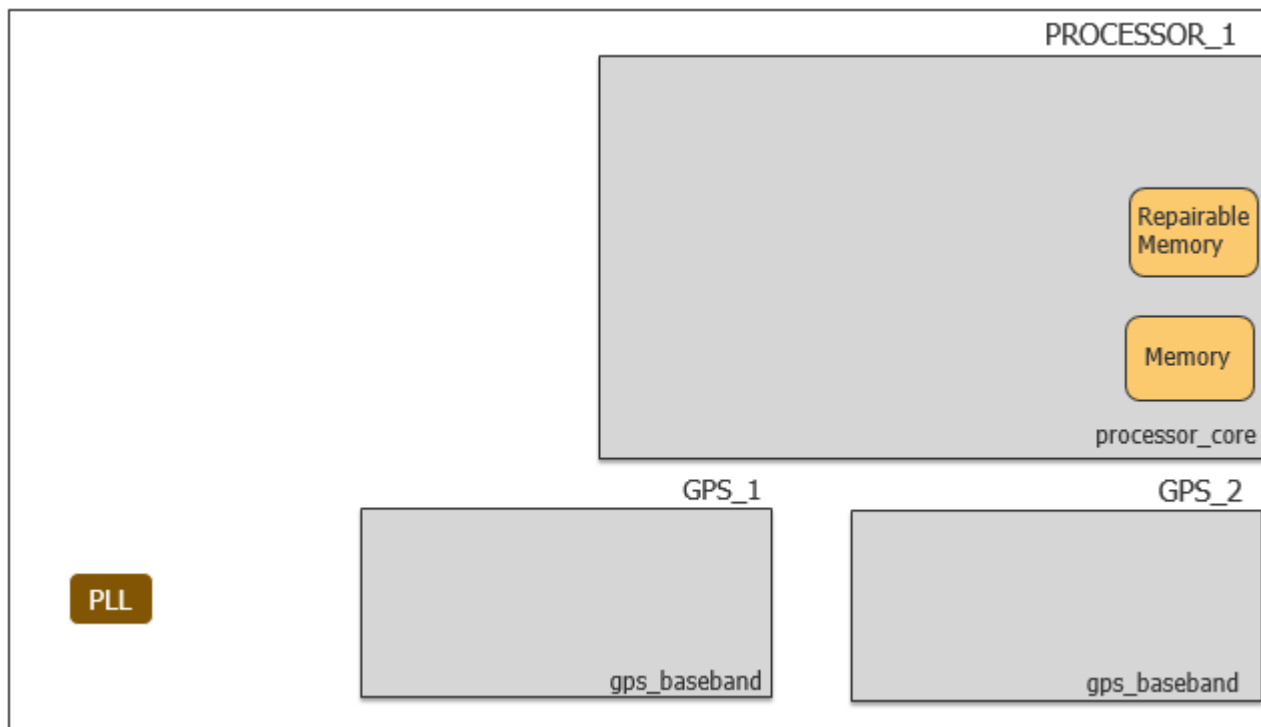


Figure 2. DFT Integration at the Core Level for Automotive

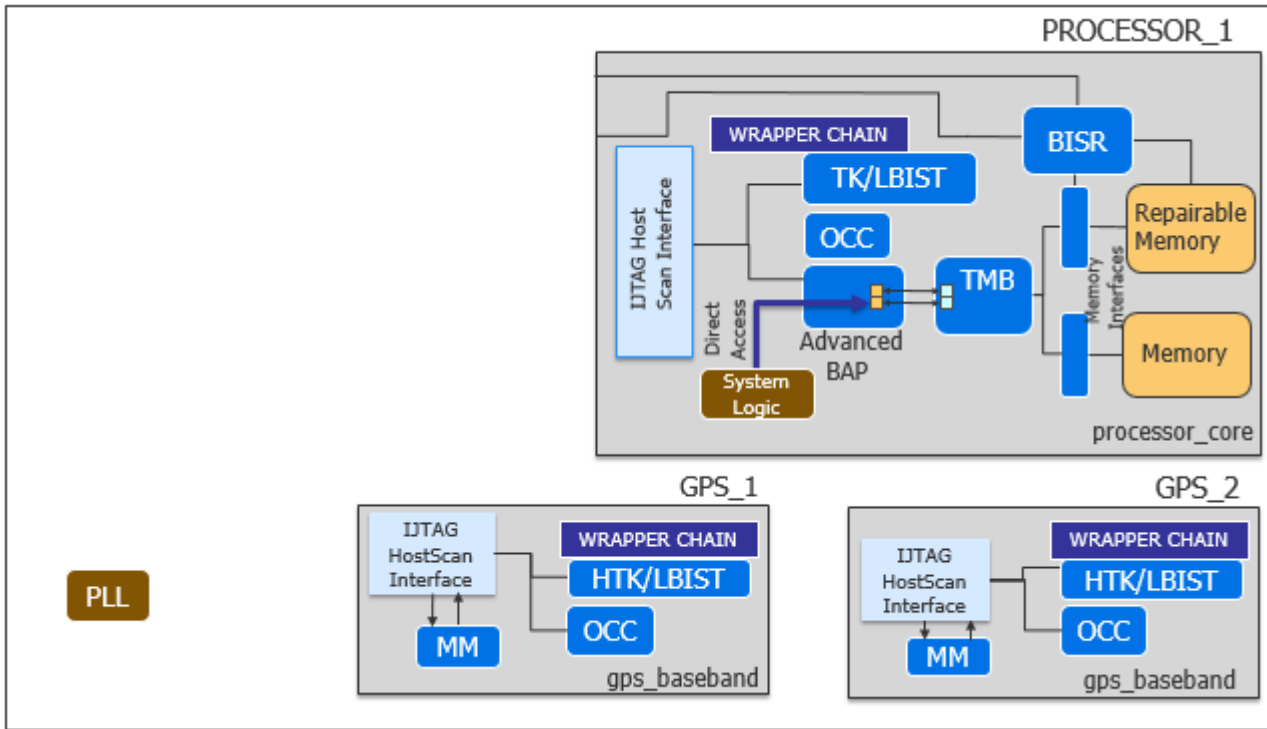
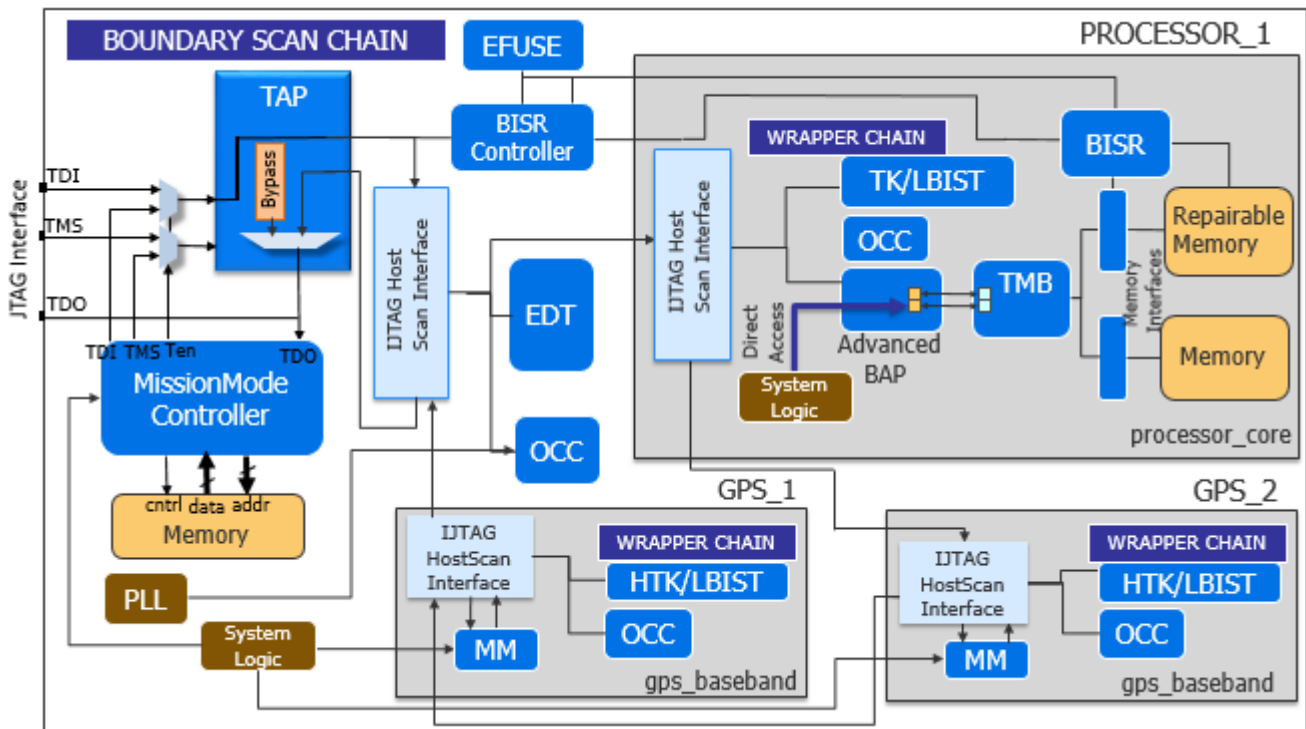


Figure 3. DFT Integration at the Top Level for Automotive



## 1. dft spec

IST数据接口有两种：

- cpu interface -- 数据直接由FW控制，方便直接写入到FW程序中
- dma interface -- 速度快，数据直接从memory内存中搬移

# 指定为current design

```
InSystemTest {
  Controller(post) {
    DesignInstance (.){}
    //host_interface: HostScanInterface(sri);
    data_width : 32 ;
    protocol : cpu_interface;
    ControllerChain {
      present : on ;
      clock: tck;
      segment_per_instrument: on ;
    }
    Connections {
      reset : ist_if/reset;
      CpuInterface {
        Generic {
          clock : ist_if/clock ;
          data_in : ist_if/data_in ;
          data_out: ist_if/data_out ;
          write_en: ist_if/write_en ;
          enable : ist_if/enable ;
        }
      }
    }
  }
}
```

*# 指定instance的host scan interface*

```
InSystemTest {
  Controller(post) {
    DesignInstance(chip_top_rttl_tessent_tap_main_inst) {
      client_interface : tap_client;
    }
    //host_interface: HostScanInterface(sri);
    data_width : 32 ;
    protocol : cpu_interface;
    ControllerChain {
      present : on ;
      clock: tck;
      segment_per_instrument: on ;
    }
    Connections {
      reset : ist_if/reset;
      CpuInterface {
        Generic {
          clock : ist_if/clock ;
          data_in : ist_if/data_in ;
          data_out: ist_if/data_out ;
          write_en: ist_if/write_en ;
          enable : ist_if/enable ;
        }
      }
    }
  }
}
```

```
}  
}  
}  
}
```

## 2. pattern spec

```
read_config_data -in $spec -last -from_string {  
  InSystemTest {  
    Controller(icl_instance_name) {  
      TestProgram(0) {  
        pattern : pattern_wrapper_name ;  
        finish_with_ireset : on | off ;  
      }  
      TestProgram(1) {  
        pattern : pattern_wrapper_name ;  
        finish_with_ireset : on | off ;  
      }  
    }  
  }  
}
```