

# Flash Technology

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- ◆ Protocol Analysis and Test Solution
- ◆ Agenda
  - About Flash Technology
  - Absolute Analysis Products
  - Key Features
  - Q & A



# 我们的产品和服务

- ◆ Green Hills. Keil and Tasking C/C++/MISRA C 编译器和集成开发环境
- ◆ 支持各种 CPU, DSP, FPGA 的 JTAG/Trace 仿真器 (ARM, PowerPC, Intel x86,68K,DSP 等等)
- ◆ 实时全仿真器 (Full ICE)
- ◆ 软件单元测试工具 (DO-178B 等)
- ◆ 边界扫描在线测试
- ◆ 在线编程器
- ◆ 协议分析和测试
- ◆ Fiber Channel
- ◆ Ethernet
- ◆ AFDX/ARINC664
- ◆ Serial Rapid IO
- ◆ Serial FPDP
- ◆ CPRI
- ◆ OBSAI
- ◆ FICON
- ◆ PCIe
- SATA
- SAS
- Infiniband
- ARINC629
- ARINC818
- MIL-STD-1760
- USB2.0 USB3.0
- I2C/SMBus
- CAN/Flexray



# Absolute Analysis 用同一个硬件支持

## 不同功能

- ▶ 协议分析
- ▶ 数据包生成
- ▶ 协议编辑/加密
- ▶ 故障注入
- ▶ 衰减测试
- ▶ 性能统计
- ▶ 误码率测试
- ▶ 二次开发API

## 不同的协议

- ▶ Fibre Channel / FC-AV
- ▶ FC-AE-ASM
- ▶ FC-AE-1553
- ▶ Ethernet (*iSCSI, IPv6, FCoE*)
- ▶ Serial FPDP
- ▶ SATA /SAS
- ▶ AFDX/ARINC664
- ▶ ARINC818 / ARINC629
- ▶ MIL-STD-1760
- ▶ FICON
- ▶ CPRI/OBSAI
- ▶ PCI Express
- ▶ Serial Rapid IO
- ▶ InfiniBand
- ▶ Mixed Protocols

## 不同速率

▶ 1Gbps



▶ 10Gbps

▶ 非标准速率

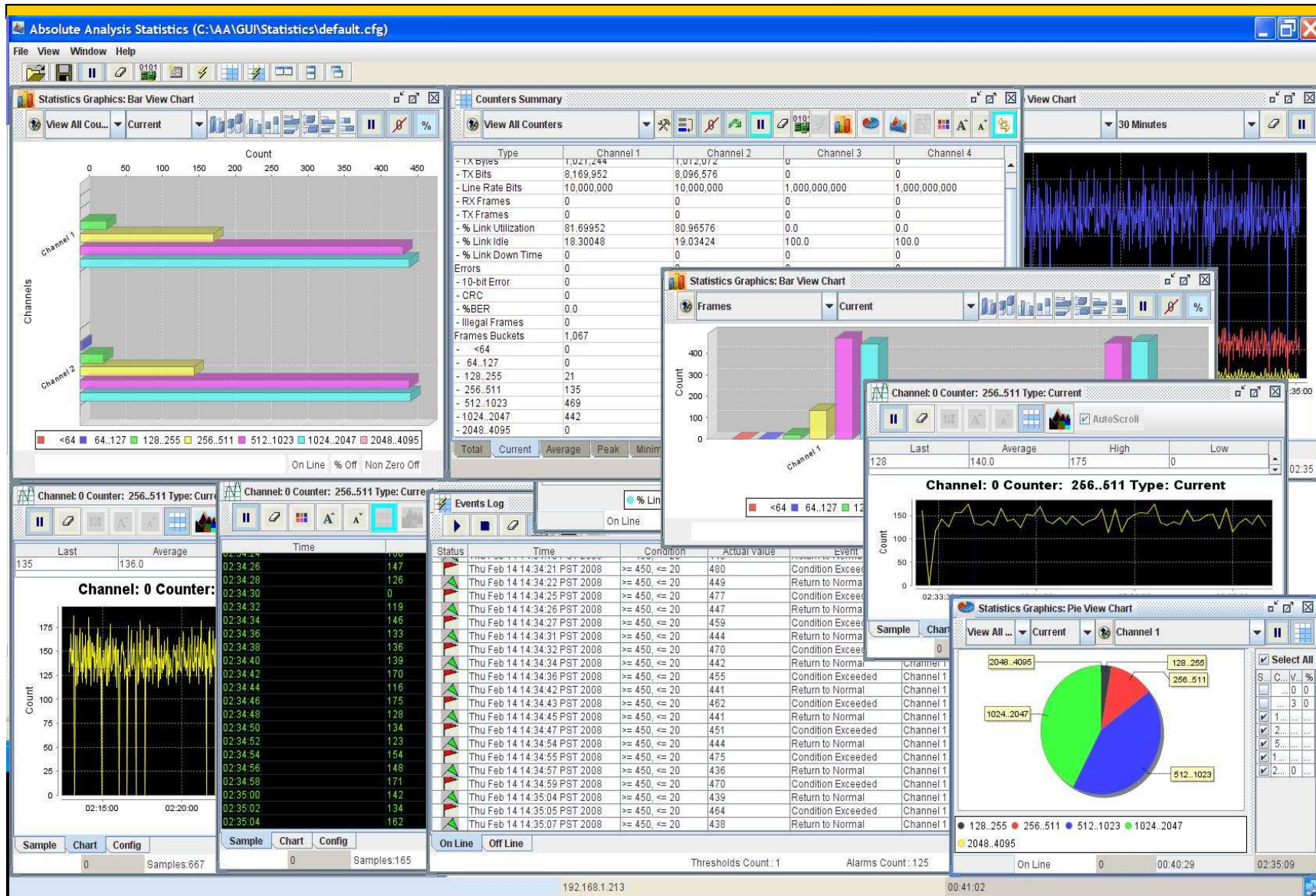


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# 全集成的软件平台



# 强大的分析和测试软件



# 多样化的主机平台



☞ 小型便携机

☞ 大型便携机

☞ 刀片

☞ 机架式

☞ 台式机

☞ 三屏便携式



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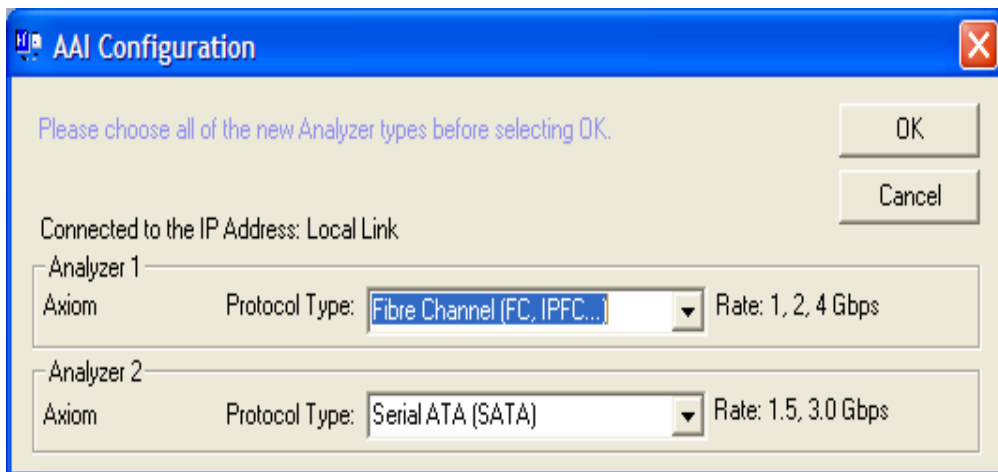
# 主机性能示例

- ◆ 6 PCI 插槽,扩展性好
- ◆ Intel 酷睿2至强CPU
- ◆ 主频2.33G, 四核
- ◆ 2GB DDR2内存
- ◆ 500G硬盘
- ◆ 硬盘可拆卸以便保护数据



# 四端口仿真测试板卡简介

- ◆ FPGA 可重配置以支持不同协议
- ◆ 每卡4GB Memory
- ◆ 支持硬件 Trigger In and Trigger Out
- ◆ 支持xGHz 以下所有的通信速率 (x=6 or 8 or 10)



- 协议可配置
- 功能可配置
- FPGA 重编程
- 即配即用

Fibre Channel (FC, IPFC...)

Fibre Channel (FC, IPFC...)

Ethernet (IP/TCP, iSCSI...)

Serial FPDP

Serial ATA (SATA)

Serial Attached SCSI (SAS)

Bit Error Rate Test (BERT)

Ethernet (10/100/1000 MBit)







# Drag and Drop 多层 Trigger/Filter

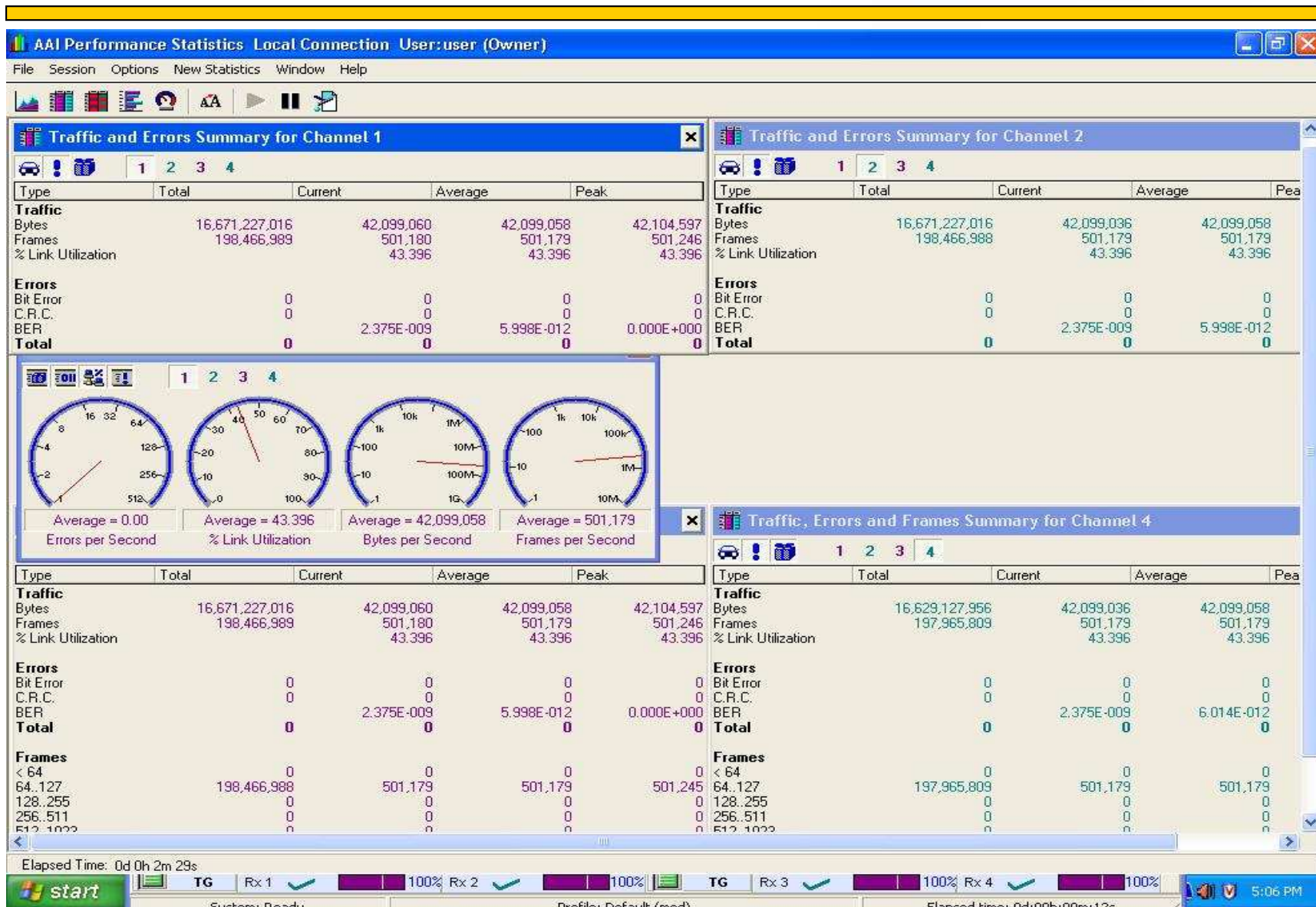
The screenshot displays the AAI Control Window for Protocol Analyzer, titled "Network Connection: 192.168.1....". The interface includes a menu bar (File, Capture, View, Plugins, Help) and a toolbar with icons for Open, Save, Start, Stop/View, Abort, Statistics, Viewer, and Mapper. Below the toolbar, there are settings for Channel size (1024 MB), LoS Tolerance (High/Low), Buffer full behavior (Stop capture/Wrap buffer), and a Find item search box.

The main area is divided into two panes. The left pane, labeled "Triggers | Filters", shows a "Trigger list" with a flowchart of a multi-layer trigger configuration. The flow starts with "Start capture", followed by "NOS" (with sub-options 1, 2, 3, 4), "OLS" (with sub-options 1, 2, 3, 4), "LR" (with sub-options 1, 2, 3, 4), and "LRR" (with sub-options 1, 2, 3, 4). This is followed by an "OR" condition with two sub-triggers: "OR Group 1" (with a 20 ms delay) and "Any EOF" (with sub-options 1, 2, 3, 4). The flow then goes to "CRC error" (with sub-options 1, 2, 3, 4) and finally "Stop and view". The right pane, labeled "Select item", shows a tree view of protocol layers: User, Fibre Channel, Address, FC, FC-4, FC\_VI, FC-AE, FCIP, FCP\_SCSI, FC-SB-2, LLC, TFTP, Ordered sets, All ordered sets, and Delimiter ordered sets (including Any EOF, Any SOF, EOFa, EOFa+, EOFdt, EOFdt+, EOFdt-, EOFdt-, EOFdt+, EOFFn).

The bottom status bar shows four channels: TG #1 (1 Gbps, Ch 1, 0% capture), FC #2 (1 Gbps, Ch 2, 0% capture), TG #3 (1 Gbps, Ch 3, 0% capture), and FC #4 (1 Gbps, Ch 4, 0% capture). The system is ready, the profile is Default (mod), and the elapsed time is 0d:00h:00m:16s.

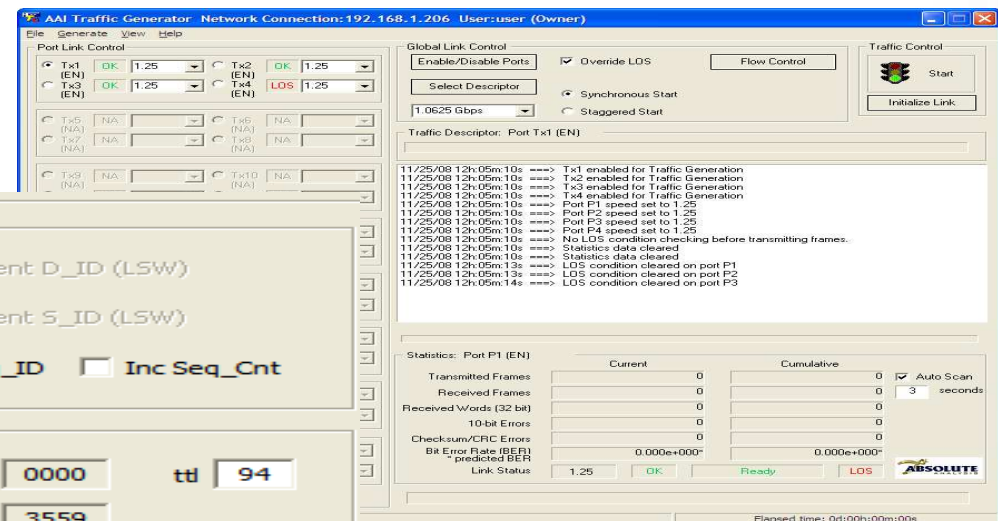
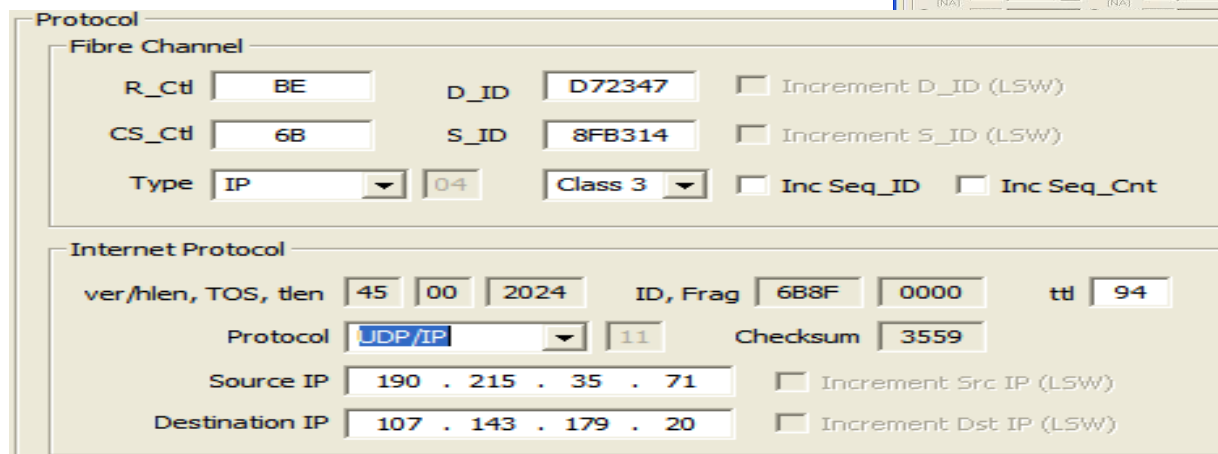
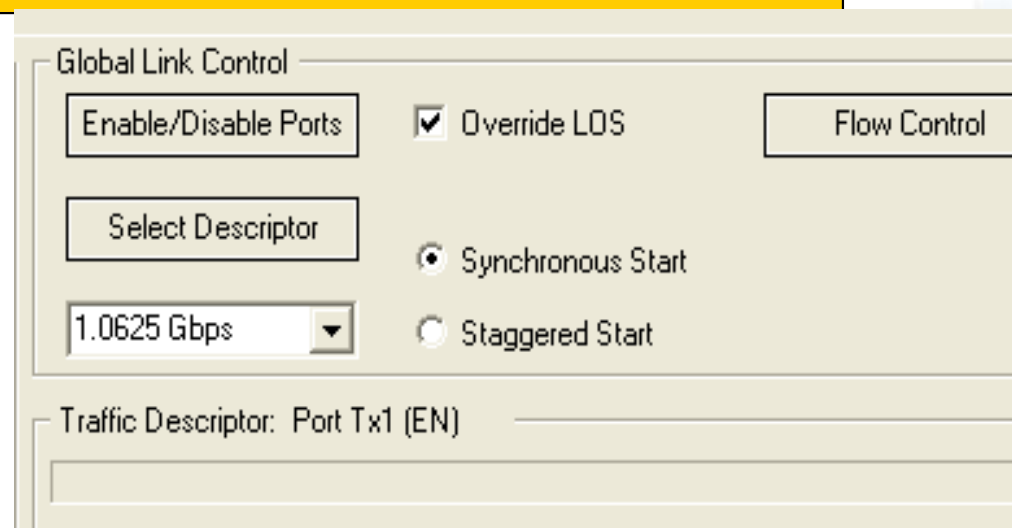


# 实时统计与分析



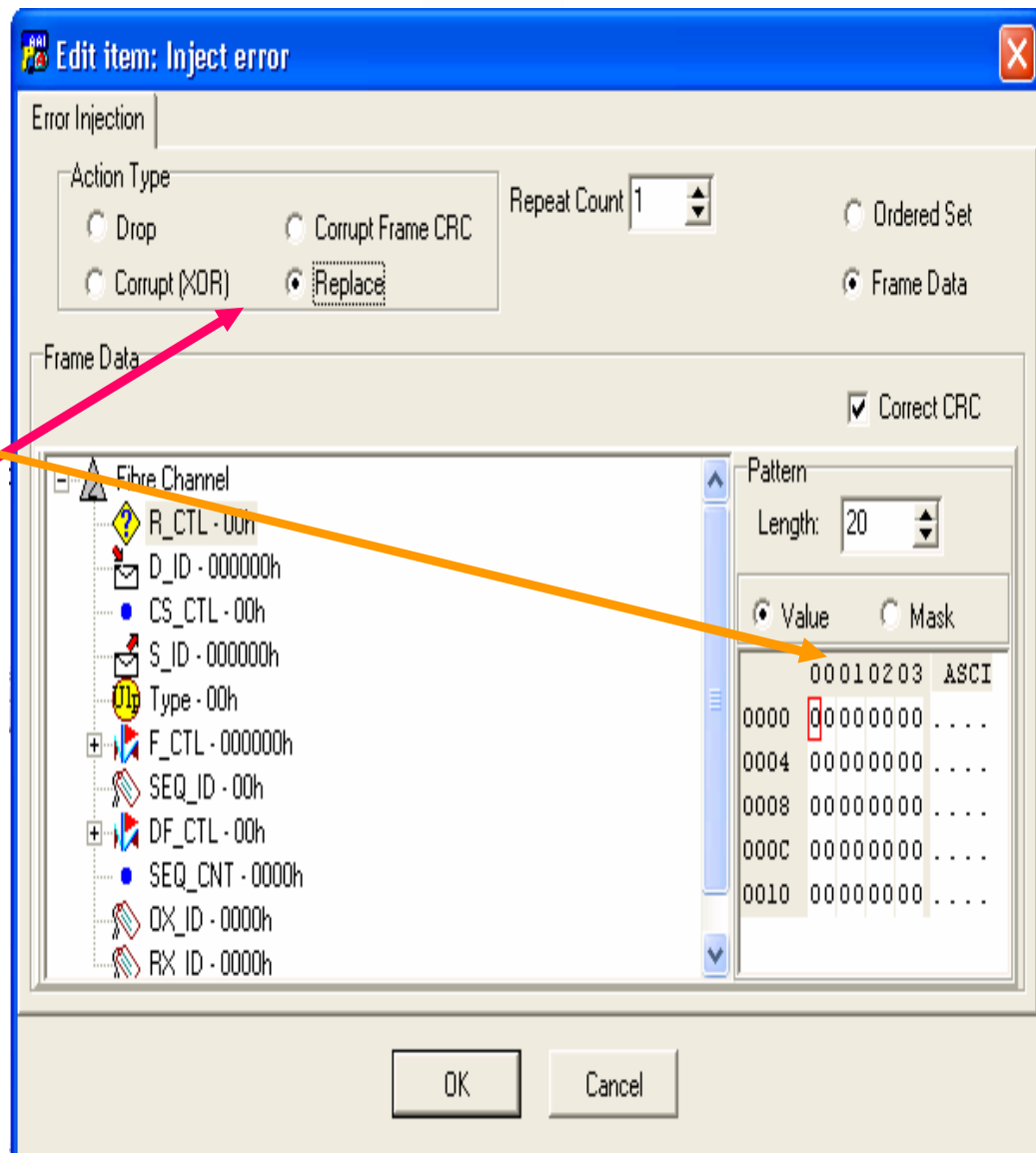
# AAI Traffic Generator数据包发生器

- ◆ 支持FC/AFDX/Ethernet等
- ◆ 自定义数据帧
- ◆ 提供 Frame Builder
- ◆ 可生成合法或者非法数据帧
- ◆ 自定义帧数量或连续模式发送
- ◆ 100%线速工作，最高xG
- ◆ 通信速率可调
- ◆ 多端口同时发送



# AAI Error Injector故障注入


- ◆ 支持FC/AFDX/ETH
- ◆ 100%线速监控通信
- ◆ 自定义注入开始条件
- ◆ 自定义注入故障类型
- ◆ 注入故障数目自定义
- ◆ 每一个Bit 都可以被替换
- ◆ 自动重算CRC
- ◆ 注入方式包括
  - 空闲帧
  - 异或破坏
  - 破坏校验和
  - 替换



# AAI 误码率测试 B.E.R.T

- ◆ 支持FC/AFDX/ETH
- ◆ 100% 线速测试
- ◆ 速率可设置
- ◆ 多端口同时测试

Statistics: Port Tx3

	Current	Cumulative	
Transmitted Words (32 bit)	43,425,360	44,358,864	<input checked="" type="checkbox"/> Auto Scan
Error Bursts	57,503	59,271	3 (s)
Received Words (32 bit)	43,425,360	44,358,864	
10-bit Errors	172,509	177,813	
Bit Error Rate (BER) * = Predicted BER	2.784e-009*	2.128e-005	
Link Status	1.0625 Gbps	LOS	Transmitting
		LOS	

System: Transmitting      Start time: 11/25/08 14h:41m:07s      Elapsed time: 0d:00h:00m:03s



# AAI Impairment Tester 衰减延迟测试

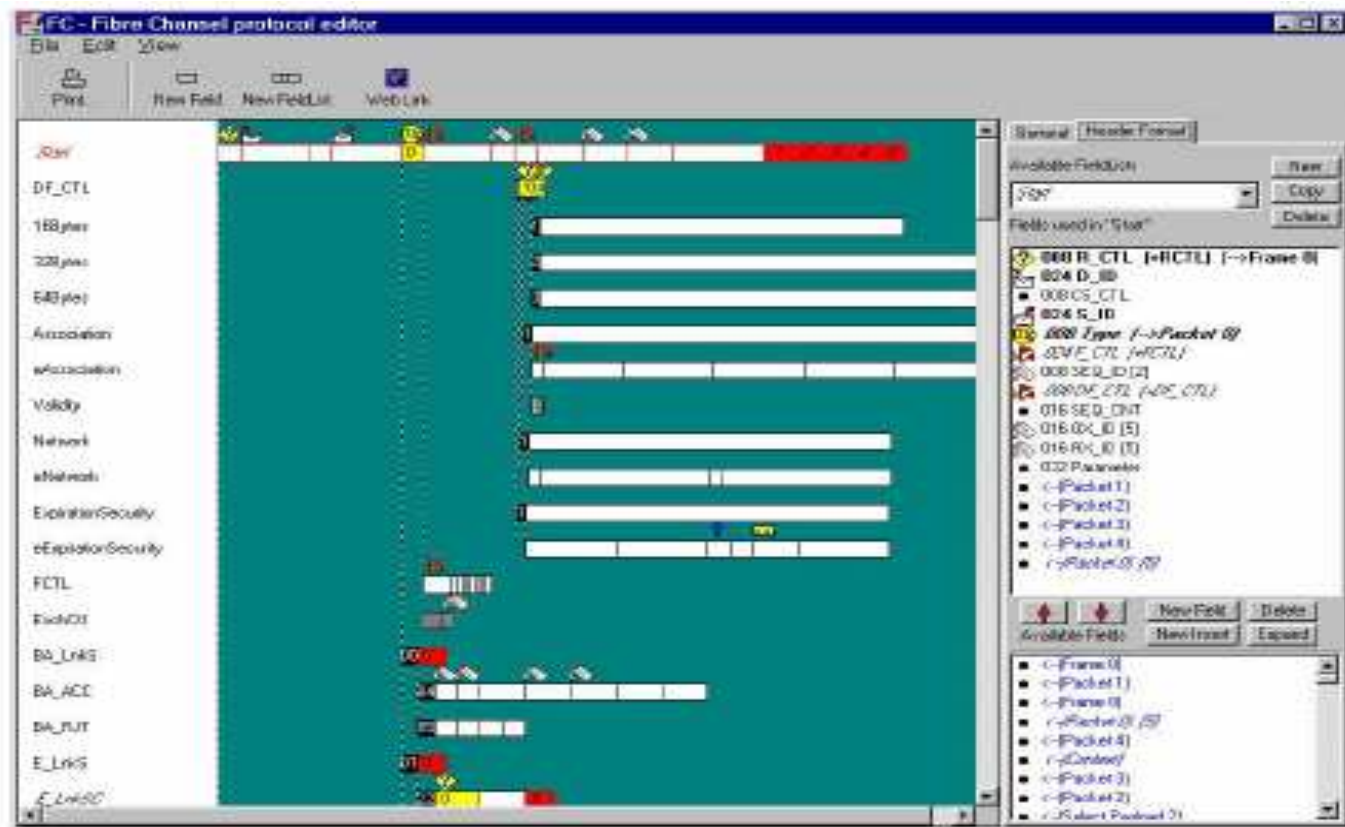
- ◆ 支持FC/AFDX /ETH
- ◆ 模拟超长的电缆和信号延迟对信号的影响
  - 自定义双向延迟 验证最适当的线缆长度
- ◆ 发现信号丢失的原因, 比如
  - 错误的数据包 线路的破坏或抖动
  - 转发器的缺陷 线缆的缺陷
- ◆ 测试错误修复能力
  - 降低速度,在延迟的状态下检查
  - 同时识别多种错误 对错误全方位的解释
- ◆ 报告时延或
  - 时延的总数 时延的距离 信号时间

Port Control			Port Status	Delay Control
	Delay Value:	Delay Unit:	Actual Delay:	
<input checked="" type="radio"/> Rx1->Tx2	750.016	ms	750.016	Update
<input type="radio"/> Rx2->Tx1	13.216	us	13.216	
				Protocol: EN
				Speed: 1.25
				OK
				OK
				Apply Delay



# AAI Protocol Editor协议编辑器

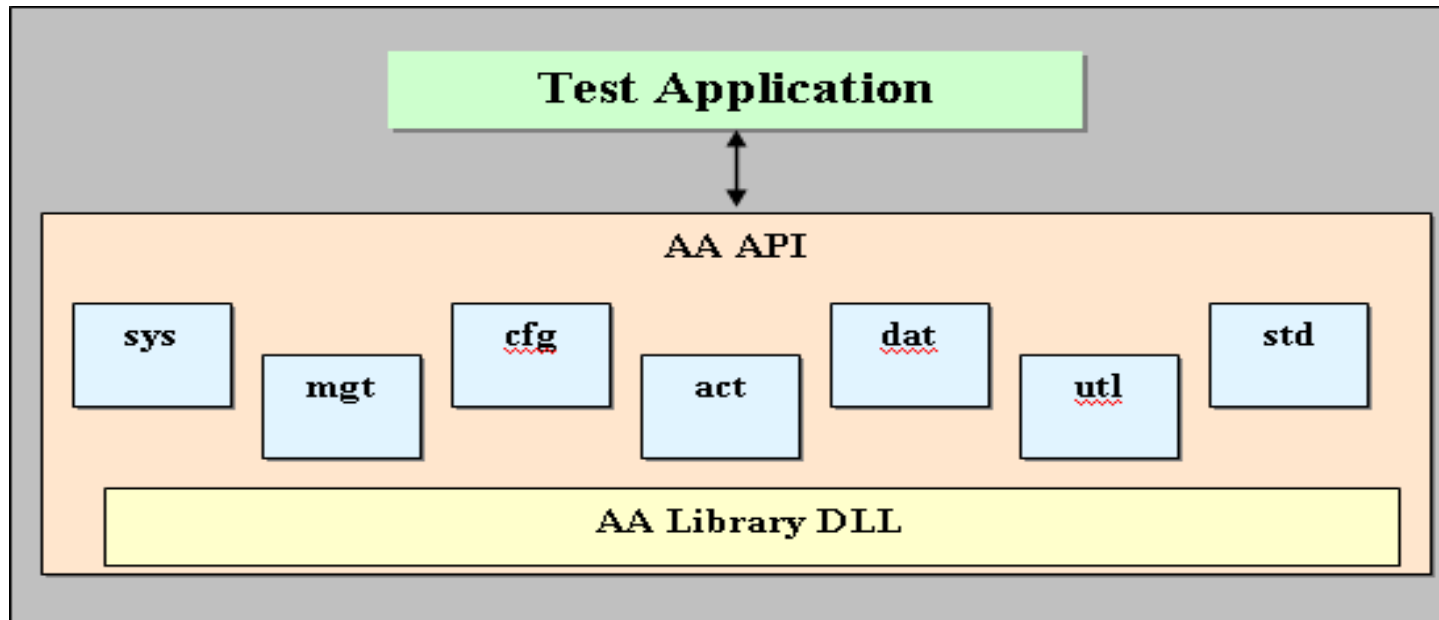
- ◆ 允许用户自己定义协议
- ◆ 或者在现有协议上作修改或加密
- ◆ 或者自定义数据区每字段的含义
  - 风速
  - 大气压力
  - 高度
  - 距离等





# AAI 二次开发API

- ◆ 通过API可完全访问系统资源
- ◆ 通过API可完全控制整个系统
- ◆ 通过API可调用每个功能模块
- ◆ 适用于 Borland 或者微软开发环境
- ◆ 并提供示例程序



# 和我们联系

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