

RDMA

CQ

- 一个从硬件到软件的队列。与WQ相反，CQ是硬件完成任务后返回给软件的报告队列
- 每当硬件处理完一个WQE之后，都会产生一个CQE放在CQ队列中。如果一个WQE对应的CQE没有产生，那么这个WQE就会一直被认为还未处理完
- 若在完整SEND/WRITE/RCV/READ完成前就产生CQE，上层软件收到CQE会误认对应内存已经使用完毕，可能释放所有相关内存出现未知错误
- 同属一个QP的SQ和RQ可以各自关联不同的CQ，创建QP前需提前创造CQ并分别指定SQ和RQ要使用的CQ

驱动层

CQ的元素，如已完成QP1的SQ中WQE1这个任务

DMA节点上每个CQ对都有一个唯一的编号CQN来标识

与QPC同理，按格式存CQ的基本信息

CQN

CQC

立即错误

eg: 用户传入非法操作码，则WQE还没下发到硬件就返回，并通过CQ返回立即错误

eg: 用户下发SEND，但长时间没收到ACK，则硬件产生对应CQE，包含超时未响应错误

本地保护域错误。本地WQE中指定的数据内存地址的MR不合法，即用户试图使用一片未注册的内存中的数据

远端权限错误。本端没有权限读/写指定的对端内存地址

重传超次错误。对端一直未回复正确的ACK，导致本端多次重传，超过了预设的次数

本地访问错误。说明对端试图写入其没有权限写入的内存区域

本地长度错误。本地RQ没有足够的空间来接收对端发送的数据

eg: 用户下发太多WQE导致CQE爆栈了，IB调用软件注册事件通知用户处理当前错误

本地长度错误。本地RQ没有足够的空间来接收对端发送的数据

完成错误

异步错误

SRQ Limit Reached

Local Protection Error

Remote Access Error

Transport Retry Counter Exceeded Error

Local Access Error

Local Length Error

SRQ Limit Reached

Local Protection Error

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