EXHIBIT

DSS-2014

MOTOROLA
SEMICONDUCTOR
TECHNICAL INFORMATION

Asynchronous HDLC

MC68360 ASYNC HDLC Protocol Microcode

User's Manual

Rev 1.1

January 24, 1996

Asynchronous HDLC

1 ASYNC HDLC Controller Overview

Asynchronous HDLC is a frame-based protocol which uses HDLC framing techniques in conjunction with UART-type characters. This protocol is typically used as the physical layer for the Point-to-Point (PPP) protocol. While this protocol can be implemented by the UART controller on the QUICC in conjunction with the CPU32+, it is more efficient and less compute-intensive for the CPU to allow the Communications Processor Module (CPM) of the QUICC to perform the framing and transparency functions of the protocol.

2 ASYNC HDLC Controller Key Features

- Flexible data buffer structure which allows an entire frame or a section of a frame to be transmitted and received.
- Separate interrupts for received frames and transmitted buffers
- Automatic CRC generation and checking (CRC-CCITT)
- Support for NMSI control signals (Carrier Detect, Clear to Send, Ready to Send)
- Automatic generation of opening and closing flags
- Reception of frames with only one “shared” flag
- Automatic generation and stripping of transparency characters according to RFC 1549 utilizing transmit and receive control character maps.
- Automatic transmission of the ABORT sequence (0x7D,0x7E) after the STOP TRANSMIT command is issued.
- Automatic transmission of IDLE characters between frames and characters.
- “Small” RAM Microcode (consumes 768 bytes of Dual-Port RAM)

2.1 ASYNC HDLC Channel Frame Transmission Processing

The ASYNC HDLC Controller is designed to work with a minimum amount of intervention from the CPU32+ core. It operates in a similar fashion to the HDLC controller on the QUICC.

When the core enables one of the transmitters and sets the ready (R) bit in the first Buffer Descriptor, the ASYNC HDLC Controller fetches the data from memory and start transmitting the frame (after transmitting the opening flag). When the controller reaches the end of the current BD, the CRC and the closing flag are appended if the last (L) bit in the Tx BD is set. If the continuous mode (CM) bit is clear, the ASYNC HDLC transmitter writes the frame status bits into the BD and clears the ready bit. If the interrupt (I) bit is set, the controller sets the TXB event bit in the event register. Thus, the I bit may be used to generate an interrupt after each buffer, after a group of buffers, or after each complete frame has been transmitted.

If the CM bit in the Tx BD is set, the ASYNC HDLC controller will write the signal unit status bits into the BD after transmission but it will not clear the ready bit.

The ASYNC HDLC controller will then proceed to the next Tx BD in the table. If it is not ready, the ASYNC HDLC controller will wait until the Tx BD is ready.

DOCKET ALARM

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts

Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research

With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips

Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS
Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS
Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS
Sync your system to PACER to automate legal marketing.