

## Abstract

The screenshot shows a 'General Info' window for a PDF document. The file name is 'Low\_Latency\_Clock\_Domain\_Transfer\_for\_Simultaneously\_Mesochronous\_Plesiochronous\_and\_Heterochronous\_Interfaces.pdf'. The document type is 'PDF document', the file size is '228 KB (228,204 bytes)', the PDF version is '1.3', the page count is '9', and the page size is '8.5 x 11 inches'. The title, author, and subject fields are empty. The PDF producer is 'Acrobat Distiller 5.0.5 (Windows)', the content creator is empty, the creation date is 'Dec 21, 2006 at 12:12 PM', and the modification date is 'Mar 16, 2007 at 4:56 AM'.

| General Info       |                                                                                                                    |
|--------------------|--------------------------------------------------------------------------------------------------------------------|
| File name:         | Low_Latency_Clock_Domain_Transfer_for_Simultaneously_Mesochronous_Plesiochronous_and_Heterochronous_Interfaces.pdf |
| Document type:     | PDF document                                                                                                       |
| File size:         | 228 KB (228,204 bytes)                                                                                             |
| PDF version:       | 1.3                                                                                                                |
| Page count:        | 9                                                                                                                  |
| Page size:         | 8.5 x 11 inches                                                                                                    |
| Title:             | -                                                                                                                  |
| Author:            | -                                                                                                                  |
| Subject:           | -                                                                                                                  |
| PDF Producer:      | Acrobat Distiller 5.0.5 (Windows)                                                                                  |
| Content creator:   | -                                                                                                                  |
| Creation date:     | Dec 21, 2006 at 12:12 PM                                                                                           |
| Modification date: | Mar 16, 2007 at 4:56 AM                                                                                            |

In the past the communication between devices in a microprocessor system was fully synchronous. Within the microprocessor itself clock domain crossings occurred only at the external interfaces of the chip. Since the interface was fully synchronous, the transfer was not particularly difficult, especially if the frequencies of the two sides of the interface were convenient multiples of each other. Later on the communication between these devices became source synchronous and new methods of clock domain crossing were employed. These interfaces still existed primarily on the external boundaries of the devices. Subsequent generations of high end microprocessor based systems will rely on even higher speed communication protocols such as SERDES (serialize-deserialize) style interfaces. This is driven by the bandwidth requirements of multi-core processors implying the need for high bandwidth external pin interfaces.

During the progression from fully synchronous external interfaces, there arose an increasing level of integration of system functions on the processor itself. An example is the adoption of chip-set functions such