ABSTRACT

The present invention enhances the usability of a write-once recording medium having a plurality of recording layers. The write-once recording medium has a plurality of recording layers each including a regular recording reproduction area, an alternate area, a first alternate-address management information area and a second alternate-address management information area (a TDMA). In addition, written unwritten state indication information (a space bitmap) is recorded therein. Typically, the written unwritten state indication information is recorded in the second alternate-address management information area. By additionally recording alternate-address management information related to an alternate-address process in the second alternate-address management information area, the second alternate-address management information area can be used as an area for implementing renewal of the alternate-address management information. In addition, for every data unit (each cluster) on each of the recording layers on the write-once recording medium, written unwritten state indication information is used as information indicating whether or not data has been written into the data unit. On top of that, the second alternate-address management information

areas (TDMAs), which are each provided on one of recording layers, are used sequentially one after another each as an area for updating alternate-address management information and written unwritten state indication information.