

(54) Title of the invention : METHOD AND APPARATUS FOR IMPLEMENTING A REDUNDANT ETHERNET RING TOPOLOGY USING SYSTEM ON CHIP INTEGRATED CIRCUITS

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| <p>(51) International classification :H04L0012437000, H04L0045280000, H04L0012420000, H04L0045000000, H04L0012460000</p> <p>(86) International Application No :NA Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA Filing Date :NA</p> <p>(62) Divisional to Application Number :NA Filing Date :NA</p> | <p>(71)Name of Applicant :</p> <p>1)Chitkara University Address of Applicant :Chitkara University, Chandigarh-Patiala National Highway, Village Jhansla, Rajpura, Punjab - 140401, India. Patiala -----</p> <p>2)Bluest Mettle Solutions Private Limited Name of Applicant : NA Address of Applicant : NA</p> <p>(72)Name of Inventor :</p> <p>1)MISHRA, Rahul Address of Applicant :ODC-4, Panchshil Tech Park, inside Courtyard by Marriott premises, Hinjewadi Phase - 1, Pune - 411057, Maharashtra, India. Pune -----</p> <p>2)SINGH, Dhiraj Address of Applicant :ODC-4, Panchshil Tech Park, inside Courtyard by Marriott premises, Hinjewadi Phase - 1, Pune - 411057, Maharashtra, India. Pune -----</p> <p>3)MANTRI, Archana Address of Applicant :Chitkara University, Chandigarh-Patiala National Highway, Village Jhansla, Rajpura, Punjab - 140401, India. Patiala -----</p> |
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(57) Abstract :

A method and apparatus for implementing a redundant Ethernet ring topology utilizing System on Chip (SoC) integrated circuits [101] is disclosed. The method involves configuring the SoC integrated circuits [101] to form a closed ring topology, transmitting data within this topology [102] in a unidirectional manner, and dynamically rerouting data [104] in case of link failures. Link failures are detected through embedded link detection modules [103]. On activation, self-testing mechanisms within the SoC integrated circuits [106] validate link statuses and network configurations. Quality of Service (QoS) mechanisms [105] prioritize data transmissions based on criticality. The apparatus includes multiple SoC integrated circuits [101] with inherent link detection [103], dynamic rerouting [104], and QoS modules [105]. Additionally, network devices [107] interface with the ring topology, and a management system [108] oversees network operations. This architecture offers a resilient Ethernet network with efficient data management and prioritization.

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