



(19) **United States**

(12) **Patent Application Publication**

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(10) **Pub. No.: US 2002/0184562 A1**

(43) **Pub. Date: Dec. 5, 2002**

(54) **METHOD OF DESIGNING CIRCUIT HAVING MULTIPLE TEST ACCESS PORTS, CIRCUIT PRODUCED THEREBY AND METHOD OF USING SAME**

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(21) Appl. No.: **09/843,307**

(22) Filed: **Apr. 27, 2001**

Publication Classification

(51) **Int. Cl.⁷ H02H 3/05**

(52) **U.S. Cl. 714/30**

(57) **ABSTRACT**

In a circuit with multiple Test Access Port (TAP) interfaces, the TAPs are arranged into groups, with secondary TAPs in one or more groups and a master TAP in another group, the master TAP having an instruction register with bits for storing a group selection code; a Test Data Output (TDO) circuit responsive to the group selection code connects the group TDO of one of the groups to the circuit TDO; and, for each secondary TAP group, a group Test Data Input (TDI) circuit responsive to a shift state signal for selectively connecting the group TDI to the circuit TDI or to the output of a padding register having its input connected to the circuit TDI, and its output connected to an input of the group TDI circuit; and a group TMS circuit responsive to a predetermined TAP selection code associated with the group for producing a group TMS signal for each TAP in the group.

