1138-05-259 **Yan Cao**, Department of Mathematics and Statistics, Georgia State University, Atlatna, GA 30303, and **Guantao Chen*** (gchen@gsu.edu), Department of Mathematics and Statistics, Georgia State University, Atlatna, GA 30303. *Vizing's Average Degree Conjecture on Edge Chromatic Critical Graphs.* Preliminary report.

Let G be a simple graph. Denote by $\Delta(G)$, $\delta(G)$, and $\chi'(G)$ the maximum degree, minimum degree and the chromatic index of G. A graph G is *edge-Δ-critical* if $\chi'(G) = \Delta + 1$ and $\chi'(H) \leq \Delta$ for any proper subgraph of H of G. Let $\overline{d}(G)$ denote the average degree of G, Vizing in 1968 conjectured that the $\overline{d}(G) \geq \Delta - 1 + \frac{3}{n}$ if G is an edge-Δ-critical graph of order n. We show that if G is an edge-Δ-critical graph with $\Delta \geq 16$, then $\overline{d}(G) \geq \frac{3}{4}\Delta - 8$. Moreover, we show that there exist two functions D and d such that for any positive real number $\epsilon \in (0,1)$, if G is an edge-Δ-critical graph with $\Delta \geq Delta(\epsilon)$ and $\delta(G) \geq d(\epsilon)$, then $\overline{d}(G) \geq (1-\epsilon)\Delta$. We will give two specific functions satisfies the statement above. By using this theorem, we also show that an edge-Δ-critical graph G has $\overline{d}(G) \geq \Delta - o(\Delta)$ if $\delta(G) \geq (\log \Delta)^{\frac{3}{4}}$. (Received February 11, 2018)